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THE TECHNOLOGY PARADOX: WHY MORE INVESTMENT HASN'T DELIVERED MORE PRODUCTIVITY

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ACKNOWLEDGEMENTS

At the time of writing, the themes and topics covered in this report were evolving and changing rapidly. Developments in technology and its social economic impact were the subject of news articles almost daily. Because the technology is new and untested, much of the media discussion has been long on opinions and short on verifiable facts. We therefore spoke to experts and professionals from a number of different academic and business disciplines to gain as much of a rounded view as we could. Conversations with PARC members, both in person and online, were key to building up the picture. We have not attributed any quotes to PARC members and some other contributors have asked not to be named in the acknowledgments. We thank them for their advice and comments.

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- **Chris Dillow,** former Head of UK Economics, Nomura, and former Chief Economist, *Investors Chronicle*
- **Greg Thwaites,** Research Director, Resolution Foundation
- **Giles Wilkes,** Specialist Partner, Flint Global, and Senior Fellow, Institute for Government

Generative AI has rapidly become embedded in workplaces, often in ways outside the knowledge and control of management.

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1.0 INTRODUCTION

There is something deeply paradoxical about the moment we find ourselves in. The organisations of the mid-2020s have access to technology of extraordinary power. Artificial intelligence tools that would have seemed implausible a decade ago are now available to anybody with a laptop. Yet by the most important measure of economic health – **productivity growth** – the advanced economies are performing no better than they were before any of this technology arrived. In some respects, they are performing worse.

This is not a new observation. The productivity puzzle – the persistent failure of advanced economies to return to the growth rates of the postwar decades – has been discussed since the failure to pull out of the slump caused by the 2008 financial crash. What is new is the scale of the investment being made in technologies that are explicitly supposed to solve it, and the growing urgency with which that solution is needed. Working-age populations are shrinking. Fiscal pressures are mounting. Geopolitical volatility is disrupting the global trading relationships on which economic growth has depended.

This report is PARC's attempt to make sense of the paradox. It draws on a substantial body of economic research, organisational theory and emerging evidence on the deployment of artificial intelligence in organisations, to ask why technology investment has so consistently failed to deliver commensurate productivity gains and what conditions would need to be in place for that to change.

The answer is not primarily a technological one. History offers a striking lesson here. The last sustained period of productivity growth in the G7 economies, during the 1990s, was not simply the product of investment in IT. It was the product of investment in IT combined with the organisational changes that allowed firms to exploit it. Those firms that spent heavily on technology without redesigning their processes, management practices and ways of working – what economists call 'organisational capital' – saw little return. Those that did both, saw significant gains. Early indications are that the same dynamic is playing out today. Those firms that are strategically re-organising for AI are seeing the highest returns.

It's wise to be wary when someone says 'this time it's different' yet there are aspects of AI which present novel challenges for organisations. The emergence of publicly available AI tools in 2022 has put a large amount of computing power into the hands of the general user. This is rapidly becoming part of everyday life in the same way that the smartphone and social media did, but probably with even more far-reaching consequences. Generative AI has rapidly become embedded in workplaces, often in ways outside the knowledge and control of management. This Shadow AI is used in a myriad of ways at the whim of individual employees. The outcomes are therefore unpredictable. In the words of one academic, it is like a spirited horse. It moves at lightning speed but not always to the destination intended by its rider. Its actions may have unforeseen and potentially catastrophic consequences.

Against this background, organisations have the challenge of embedding the technology in ways that will improve the performance of their businesses while trying to manage the potential risks. There is a danger that some companies could blow the opportunity of technology by failing to make the necessary organisational changes. There is already some evidence that this may be happening. AI is taking root in companies in a similar way that social media did. Employees are teaching themselves and using it at home, then bringing it into the workplace and deploying it in ways that are beyond the knowledge and control of their managers.

Some organisations appear to be making significant productivity improvements. Whether these gains will be generalisable across entire sectors, let alone entire economies, remains to be seen. Many economists are still sceptical while some are of the view that economy-wide productivity boosts are imminent. Two high profile US economists have even made a bet on the likelihood of a productivity boom for the US economy by 2029 – Erik Brynjolfsson for the optimists and Robert Gordon for the sceptics. At the moment, Professor Brynjolfsson appears to be winning but there may be other factors at work which are inflating the American economy. The views and research of both professors are discussed in this paper.

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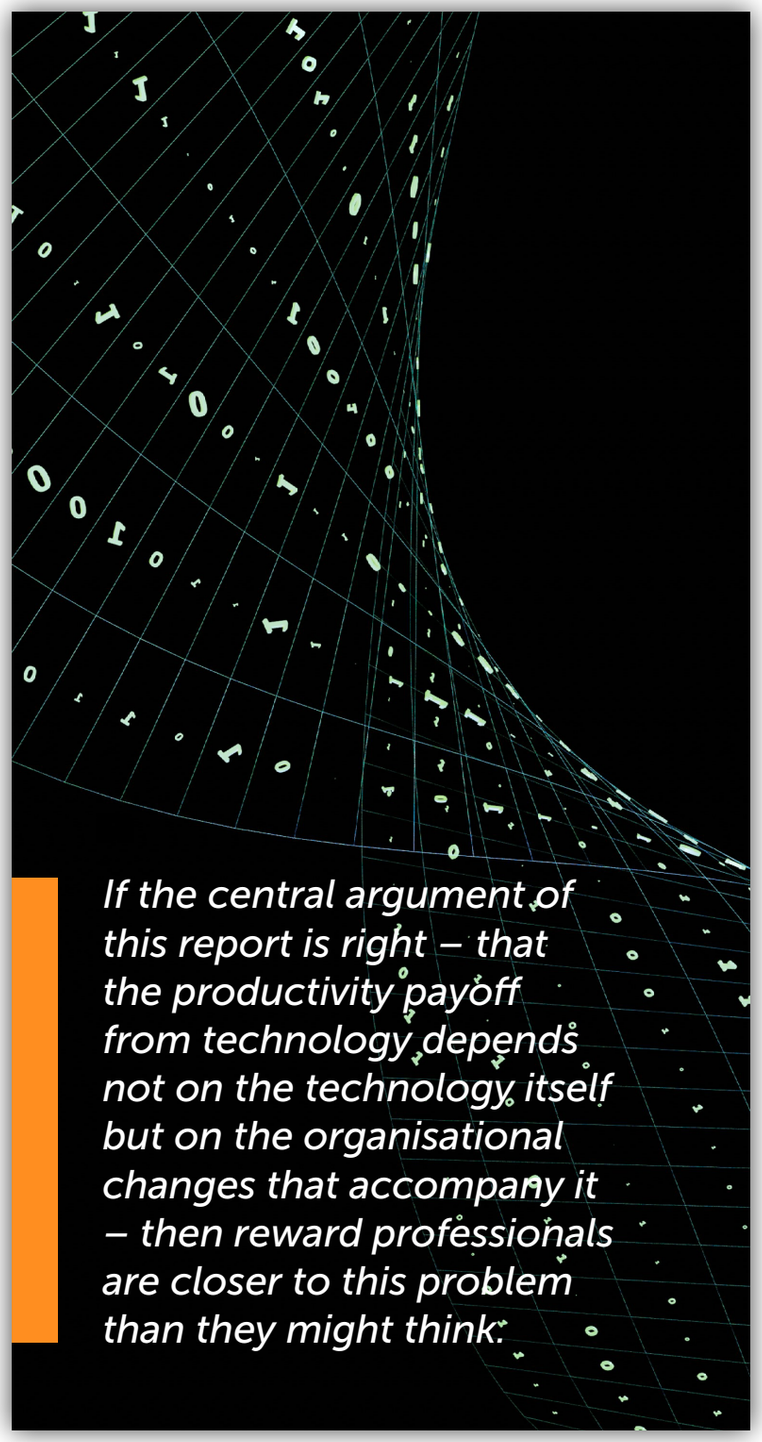
This report has been a difficult one to write because of the speed at which the technology and the geoeconomic context is moving. The level of take up of these rapidly developing technologies in organisations is still unclear and their use in the workplace is often opaque. Much of the discussion in this report explores this lack of clarity.

A word about what this report does not attempt. We do not provide a comprehensive review of the available AI tools, nor do we make predictions about the pace at which artificial intelligence will develop. The technology is moving quickly and the dangers of confident prediction in this space have been amply demonstrated over the past decade. We also don't get into the debate about the 'AI bubble' and whether the amounts invested in its development and the associated infrastructure are a good bet. What we do attempt is something more enduring: an examination of the organisational conditions that have historically determined whether new technology delivers on its economic promise, and an assessment of how well-placed today's organisations are to meet those conditions. That question is, in the end, not really about technology at all. It is about management, organisation and leadership: the context and conditions into which the technologies are introduced. Which is very much PARC's territory.

It is also, specifically, reward's territory. If the central argument of this report is right – that the productivity payoff from technology depends not on the technology itself but on the organisational changes that accompany it – then reward professionals are closer to this problem than they might think. The way people are incentivised, the behaviours that performance management systems reinforce, the signals that pay structures send about what an organisation values: these are the mechanisms through which organisational capital is built or eroded. Incentive design shapes whether people collaborate or hoard knowledge, whether they experiment or play it safe, whether they engage with new ways of working or cling to old ones. Reward architecture determines how an organisation responds to the need for reskilling, how it redeploys talent and how it balances short-term cost control against longer-term capability building. In a period when the capacity of organisations to adapt and reorganise will determine whether technology investment delivers a return, the reward function is not a bystander. It is one of the most powerful levers available. This report makes the case that reward leaders need to understand the productivity and technology landscape not as an abstract economic debate but as the context in which their own strategic choices will increasingly be judged; and their roles remain valued and relevant.



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The report is structured as follows:

We begin in **Section 2** with the productivity puzzle itself: **what has happened to economic growth, why it matters and why the timing of the current slowdown is particularly uncomfortable.**

In **Section 3** we examine **the relationship between technology and productivity,** exploring why successive waves of technological innovation have failed to deliver the productivity boosts that their proponents predicted, and what the experience of the 1990s tells us about the conditions under which technology does generate sustained growth.

Section 4 turns to the **development and rapid proliferation of artificial intelligence,** the particular challenges posed by Generative AI and the emergence of 'shadow AI' in organisations that have yet to develop coherent strategies for managing it. We examine the early evidence on AI's actual impact on productivity and employment and we consider what organisations would need to do differently to move from the majority – who are currently seeing little or no return on their AI investments – to the minority who are beginning to make genuine gains.

In **Section 5** we consider **the specific role of the reward function in building the organisational capital** on which a technology-enabled productivity revival ultimately depends.

Section 6 pulls together the content and themes in the report and **draws some overall conclusions.**

Economies only grow in two ways – by increasing the number of people, or by increasing the amount the current number of people produce.

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2.0 THE PRODUCTIVITY PUZZLE

2.1 WHAT HAS BEEN HAPPENING TO PRODUCTIVITY?

Discussion of the Productivity Puzzle is getting tiresome. We have been talking about it since 2012, when it became clear that the advanced economies were not bouncing back from the 2008 recession in the way they had done from previous downturns. Previous recessions had been followed by rapid GDP growth, making up for the ground lost and putting most economies back onto their pre-recession growth trajectories. After 2008, that didn't happen and, as the 2010s wore on, it became clear that it wasn't going to. A brief growth spurt in the mid 2010s soon ran out of steam and at the end of the decade, the Financial Times came up with the term 'synchronised stagnation' to describe the sluggish growth that seemed set in amongst the advanced economies and was affecting the emerging economies too. The hoped for post-Covid reset, and the predicted 'Roaring Twenties' period of growth, ended up doing little more than taking the economies back to where they were before lockdown, after which, most reverted to type and went back to the slow growth rates of the previous decade.

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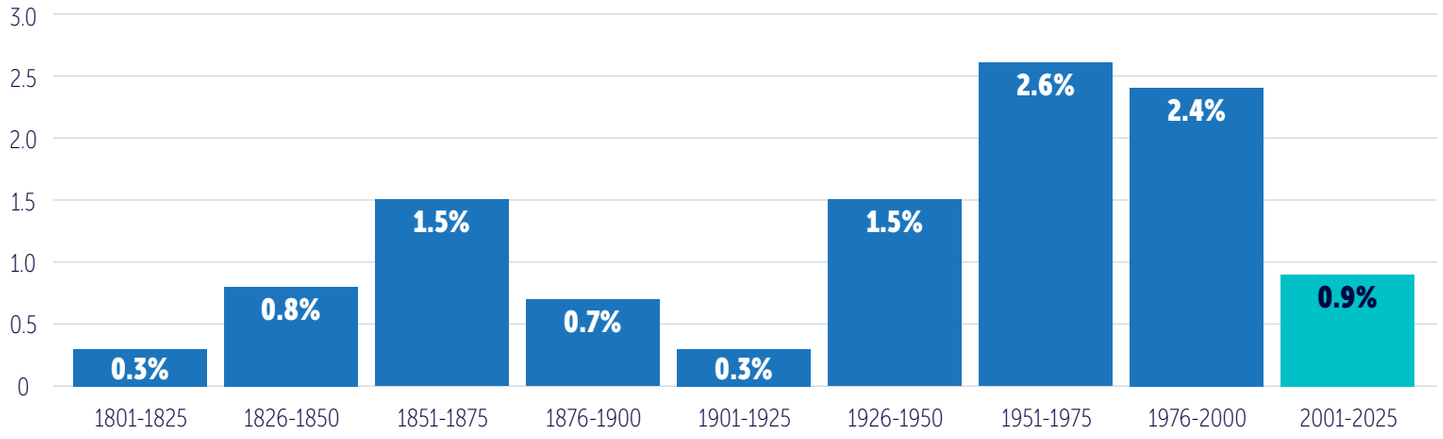
The cause of this long-term economic stagnation is low productivity growth. Economies only grow in two ways – by increasing the number of people, or by increasing the amount the current number of people produce. A report by McKinsey Global institute in July 2024 noted that much of the economic growth in the advanced economies since 2008 has been due to increasing the size of labour forces rather than increasing productivity. When measured per capita, GDP growth has almost stagnated.

To focus on the UK economy as an example, the availability of long-term economic data from the Bank of England enables us to see the impact of falling productivity growth in its historical context. The last two quarters of the 20th Century saw extraordinarily high economic growth. The first quarter of the 21st Century has been dismal, even by the standards of the previous two centuries.

While there is less historic data available for other advanced economies, the post-war history of economic growth has a similar pattern. The glory days of growth were in the last half of the 20th Century and economic performance since the Financial Crisis has been disappointing for some and almost disastrous for others.

In the period after the Financial Crisis, the Productivity Puzzle was seen as a problem mostly affecting the advanced economies. It was widely assumed that the emerging economies would see a 'catch-up' effect, with rapid development leading to equally rapid productivity growth, thereby offsetting the sluggish advanced economies and sustaining global GDP growth. For a time, this is what happened, with emerging economies experiencing a growth boom during the 2000s and early 2010s. Since then, their growth rates have tailed off leading the World Bank to declare that a global structural slowdown is underway, and to warn of *"a lost decade in the making – not just for some countries but for the whole world"*.

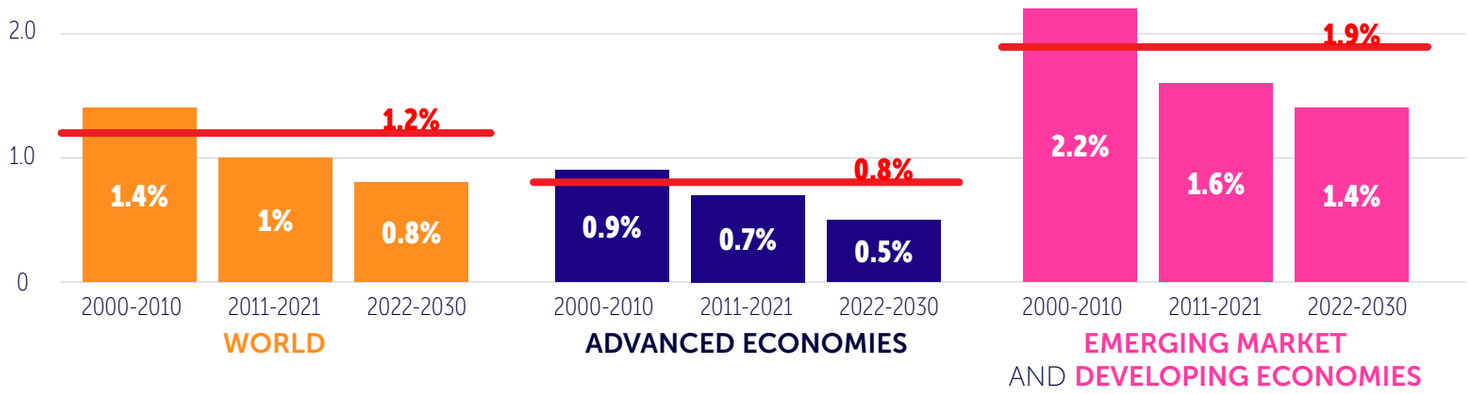
AVERAGE REAL UK GDP PER CAPITA GROWTH



Source: Bank of England and Office for Budget Responsibility

AVERAGE PRODUCTIVITY GROWTH

TFP = Total Factor Productivity. GDP-weighted arithmetic average of total factor productivity growth.
Includes 30 advanced economies and 53 EMDEs.



Productivity growth fell across the world economies in the decade 2011-21 and is forecast to fall to even lower rates until 2030.

Source: World Bank

Not all organisations measure productivity.

2.2

WHAT IS PRODUCTIVITY AND HOW IS IT MEASURED?

Productivity is a term often used interchangeably with 'efficiency'. The mathematical definition of efficiency is a ratio of input to output. However, efficiency is often used in other contexts so it has become something of an imprecise term.

Productivity is a measure of efficiency, of output per unit of input. Labour productivity is therefore a measure of the amount produced per worker or per hour worked.

The UK's Office for National Statistics (ONS) defines labour productivity as:

LABOUR PRODUCTIVITY =

Output in Gross Value Added (GVA) terms

Labour Input *(hours,workers or jobs)*

It defines Gross Value Added (GVA) is the total value of output of goods and services produced less the intermediate consumption (goods and services used up in the production process in order to produce the output).

GDP differs from GVA as it is a measure of overall economic activity, so it is not as specifically focused on production as GVA. However, the difficulty of getting timely GVA data internationally means that organisations like the OECD, IMF and World Bank usually use GDP per worker or per hour worked for country comparisons.

When looking at organisational level productivity, the ONS uses Gross Value Added divided by full-time equivalents (FTE). Organisations use a variety of measures for internal reporting, such as Value Add per FTE or Revenue per FTE.

Not all organisations measure productivity. As we noted in PARC's 2018 Productivity report, many companies do not consider it to be a 'must win battle'. Indeed, for some organisations it isn't. There will be times during an organisation's life-cycle when other things might be more important. The definition of organisational performance is determined by what a company is aiming to achieve at a given time. Under some circumstances, it is possible to increase profits while productivity per worker is falling, especially if the company's market share is growing or if labour is cheap. It is even possible for an economy to experience 'reverse creative destruction' with more productive firms going out of business to be replaced by less productive ones, as the UK did in the early 21st Century. Eventually, though, increasing the amount produced per worker will become an important measure for the long-term sustainability of any business. For countries and organisations, it is the key to long-term success.

2.3

WHY IS PRODUCTIVITY IMPORTANT?

When discussing productivity, it's almost become a cliché to quote American economist Paul Krugman but his famous lines really do get to the heart of the problem:

> *"Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker."*

If we lose that ability, it's not just economic growth that slows down, it's much of human development too. Steadily increasing per capita GDP has brought higher standards of living, improved health, longer life expectancy, better education, falling crime rates, earlier retirement and more leisure time.

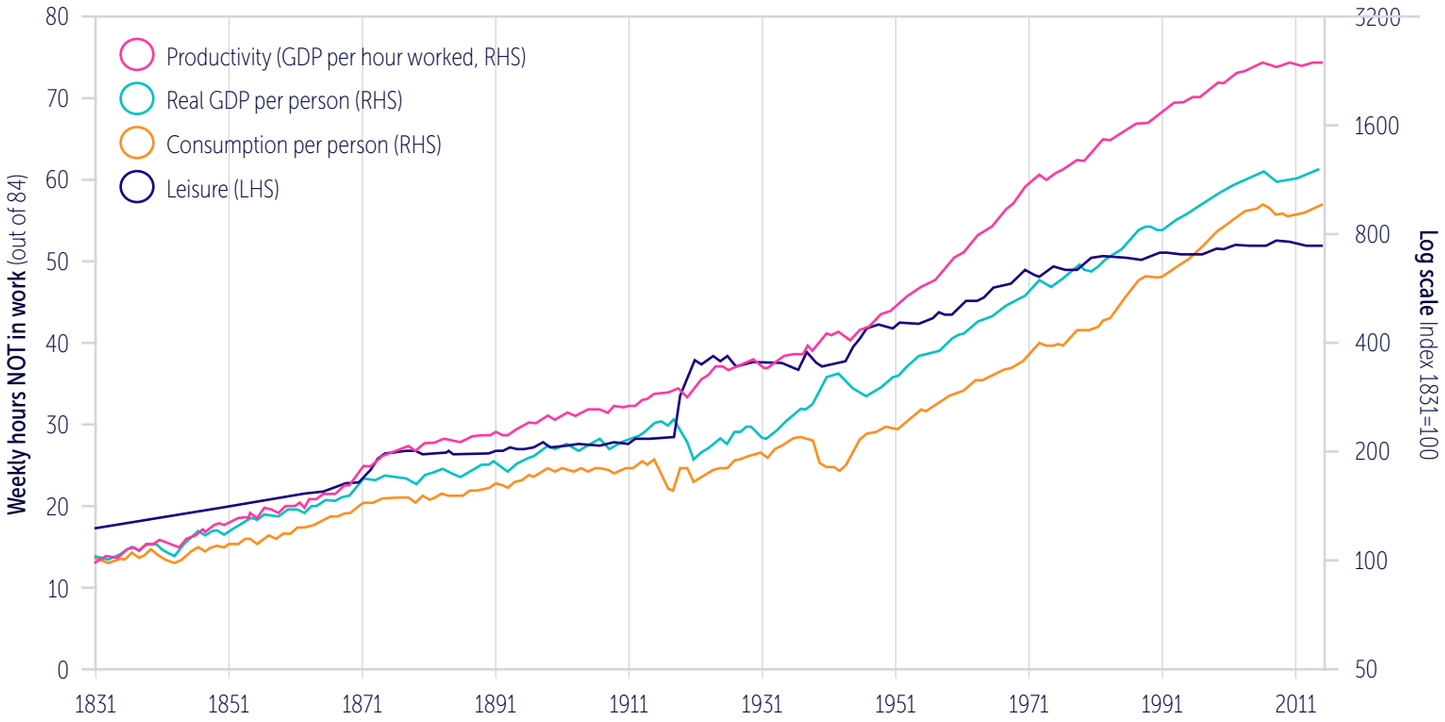
In a speech in January 2018, Bank of England MPC member Silvana Tenreyro produced a chart which demonstrated this link. As she remarked:

> *"Higher productivity is associated, almost mechanically, with higher GDP and consumption per person. Labour productivity is 25 times higher than in 1831. That has enabled a 12-fold increase in the level of GDP per person and a 9-fold increase in consumption per person. Those increases come despite spending less of our lives working. Leisure time, crudely measured as hours not in work, has increased from less than 20 hours a week in the 1830s to 50 hours a week today."*

The economies and societies of the major advanced economies were built on the postwar economic boom. Our assumptions about work, the improvement in each generation's living standards, how much paid holiday we have, what we expect from the government, what age we can stop working and how much we get paid when we retire, were largely shaped during a period when per capita GDP growth was significantly higher than it is now.

It's no wonder, then, that the persistence of low productivity growth is causing increasing concern among economists and policy makers. In a political and economic system predicated on continuous economic growth it doesn't take long for voters to notice depleted services and declining living standards. The lack of GDP growth is fuelling the political volatility that has been a feature of politics in western countries for the last decade.

HISTORICAL LABOUR PRODUCTIVITY AND INDICATORS OF WELFARE



Source: Thomas and Dimsdale, 2017 and Bank of England calculations

The FT's John Burn-Murdoch has been tracking the rise in Zero Sum thinking – the belief that for one group to gain, another must lose. This view has become more prevalent among the adult population as GDP growth has slowed. The promise of an ever-growing pie and a rising tide lifting all boats belongs to the pre-2008 world. At a basic mathematical level, of course, the Zero Sum thinkers are right. If the pie is no longer growing, if one person gets a larger slice of it someone else must get a smaller one.

As we have noted in PARC's *Reward Manifesto* and *RemCo Effectiveness* reports, concern about inequality and outrage over executive pay doesn't track the rise in these factors, rather, it is a function of stagnating living standards. The worse people are feeling, the more angry they are about 'fat cat pay' regardless of the rate at which it is rising. As Mercer's Peter Boreham remarked:

> *"Fewer people worried about executive pay when everybody's living standards were rising. In 2008 the music stopped! Bankers' bonuses and senior pay became a focus of outrage. This was a major reset for reward. It introduced a new concept of fairness. Fair pay for senior executives became seen as being relative to the rest of the workforce."*

Productivity growth might seem like an abstract concept but when it slows down the real-world consequences are severe.

2.4

THE TIMING COULD NOT BE WORSE

A decline in our ability to increase the amount we produce for each hour worked would be a problem on its own. Coming as it does at a point when working age populations are starting to decline is enough to turn a concern into a crisis. If the proportion of the population in work shrinks, GDP per hour worked must increase just for an economy to stand still.

Working age populations are shrinking across the world, in absolute terms in many countries, and as a proportion of the population almost everywhere. The population aged 15-64 is already declining in France, Germany and Italy and is projected to start doing so in the UK, US and Canada early in the next decade. The same pattern is becoming apparent in the emerging economies. Birth rates are falling and life expectancy is rising more rapidly than in the advanced economies. This rate of ageing means that they will soon catch up with the advanced economies. We are used to thinking of economies like Brazil, Vietnam, South Korea and Iran as 'young countries' but they are forecast to have higher median ages than the UK by 2050. The size of the working age population of China is already in decline and is forecast to shrink by more than 50 million over the next decade. As productivity growth slows down in the emerging economies too, the outlook for global growth looks grim.

As if this isn't enough, the imperative of tackling climate change, while it may boost growth in the longer term, is likely to act as a brake on it in the short-term. As we discussed in PARC's 2024 report ***Getting to Net Zero***, the investment in the transition to Net Zero is unlikely to deliver 'green growth' until well into the next decade. Economist Ed Conway described the transition to Net Zero as *"a generational sacrifice"*. This assessment by the Resolution Foundation takes a similar line:

> *"This will not be a major boost to growth in the short term because it involves replacing large parts of our capital stock rather than adding to it. In the longer term that infrastructure will be cheaper to run and if net zero-driven technological change leads to abundant, secure, and cheap electricity generation that would provide a major boost to growth. But an economic strategy cannot come down to counting on the latter materialising during the 2020s. Overall, net zero cannot be relied upon to deliver an economic silver bullet."*

Added to these pressures is the increased geopolitical and trade volatility of the 2020s. We covered this in some depth in the PARC's 2025 report ***Is Your Organisation Built to Adapt and Survive?*** and simply watching a news bulletin is enough to bring home the point. The current tensions in global politics look set to persist for some time and can only have a detrimental effect on economic growth.

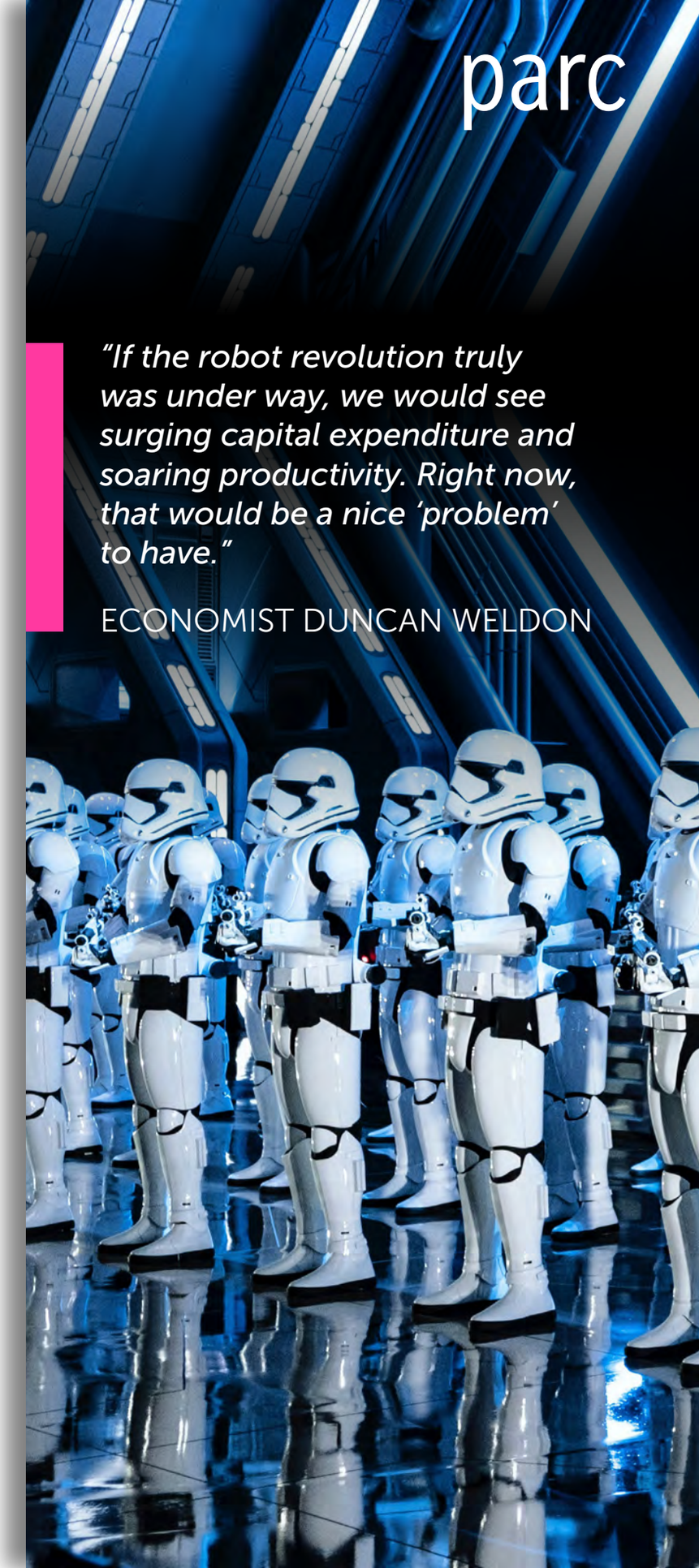
The UK Office for Budget Responsibility's Fiscal Risks report summed up this perfect storm in terms that could apply to all the advanced economies and many of the emerging ones too.

> *"Fiscal tailwinds from a post-World War II baby boom, global economic integration, and easing of Cold War tensions have switched to headwinds in the first part of this century. Public finances are now under growing pressure from ageing populations, disappointing economic growth, a warming planet, and rising geopolitical tensions. Amidst these pressures, many governments have struggled to rebuild their fiscal resilience during the increasingly brief interludes between global crises."*

Against this background, the imperative for a technology-led growth boost becomes urgent. As economist Duncan Weldon put it:

> *"If the robot revolution truly was under way, we would see surging capital expenditure and soaring productivity. Right now, that would be a nice 'problem' to have. The real and pressing concern when it comes to the jobs market and automation is that the robots aren't taking our jobs fast enough."*

However, recent technological developments appear to have had very little impact on productivity. The smartphone, GPS, the mobile internet and social media may have changed the way many of us live and work but the mass availability of these technologies has coincided with the longest period of economic stagnation in recorded history.



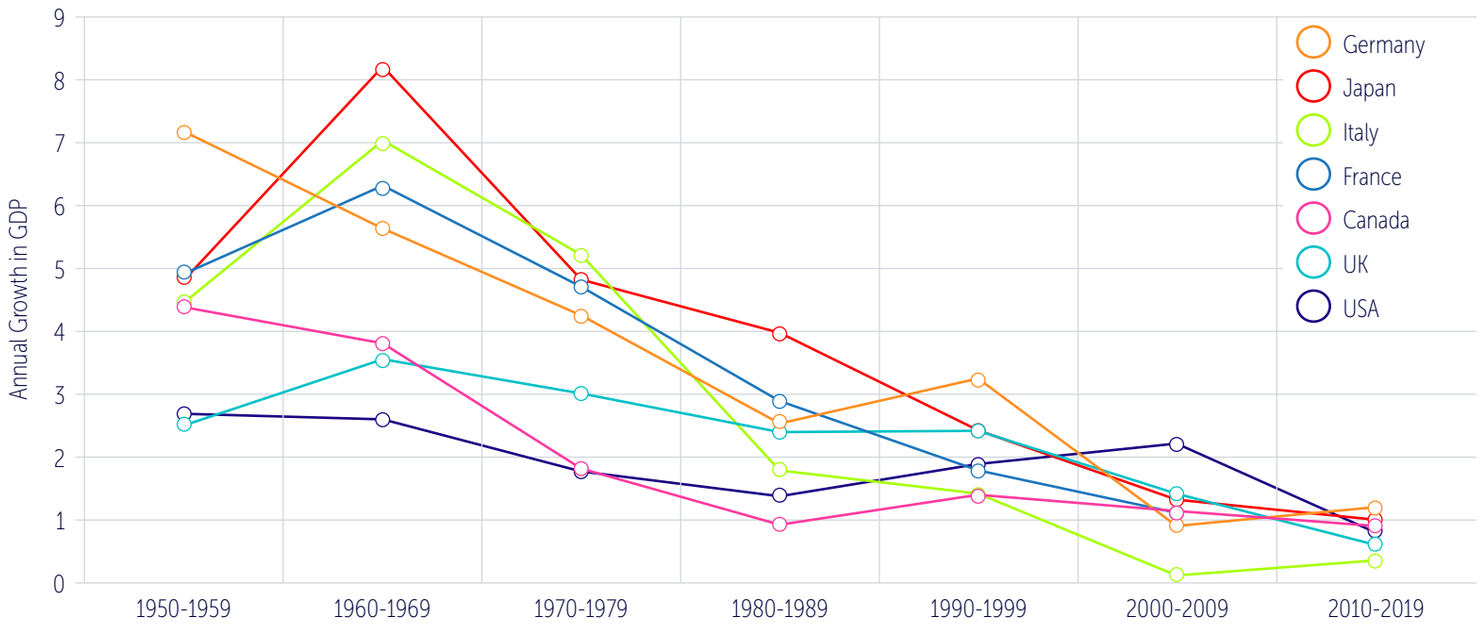
2.5

THE TECHNOLOGICAL PLATEAU

While the term 'Productivity Puzzle' is relatively new, there is an argument that the post-2008 stagnation is only a continuation of a trend that has been apparent in the advanced economies for decades. The years of rapid productivity growth came after the Second World War, as military technologies were re-purposed for civilian use, pent-up demand fuelled spending and baby booms added future workers and consumers to the population. The war-ravaged economies powered their way into the postwar world with rates of productivity growth never seen before or since.

Since then, there has been a decline in productivity growth across the advanced economies. A number of explanations have been put forward for this. We discussed them in depth in PARC's 2018 report on productivity, so we don't intend to rehearse them again here. Suffice to say that they don't give an entirely satisfactory explanation, hence the term 'productivity puzzle'. What is clear, though, is that the long-term productivity decline is having a visible effect on the advanced economies.

AVERAGE ANNUAL GROWTH IN GDP PER HOUR WORKED



Source: Penn World Table (PWT 11.0)

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Seen against this background, some commentators have argued that the growth of the postwar period was a historical blip and that the low growth we are now experiencing is simply a reversion to historical norms. US economists Robert Gordon and Tyler Cowen, and British investor Jeremy Grantham, believe that the world has hit a technological plateau and that the rate of innovation has slowed down. Consequently, low productivity growth and therefore low GDP growth will be a feature for the foreseeable future. Houston University's Deitrich Vollrath goes even further. His book, *Fully Grown: Why a Stagnant Economy is a Sign of Success* argues that the innovations of the last 80 years have given us so much comfort, security, and luxury, that we have turned to new forms of production and consumption that increase our well-being but do not contribute to growth in GDP.

Lack of investment is often blamed for the productivity slowdown. Investment has been in steady decline across the OECD since the productivity boom of the mid 20th Century. The country at the bottom of the investment league is the UK, which experienced particularly low productivity growth since 2008. But the technological plateau theory flips this argument on its head. It's not that lack of investment is causing a lack of innovation, it's the other way around. Because there is a lack of innovation, there are fewer opportunities for investment.

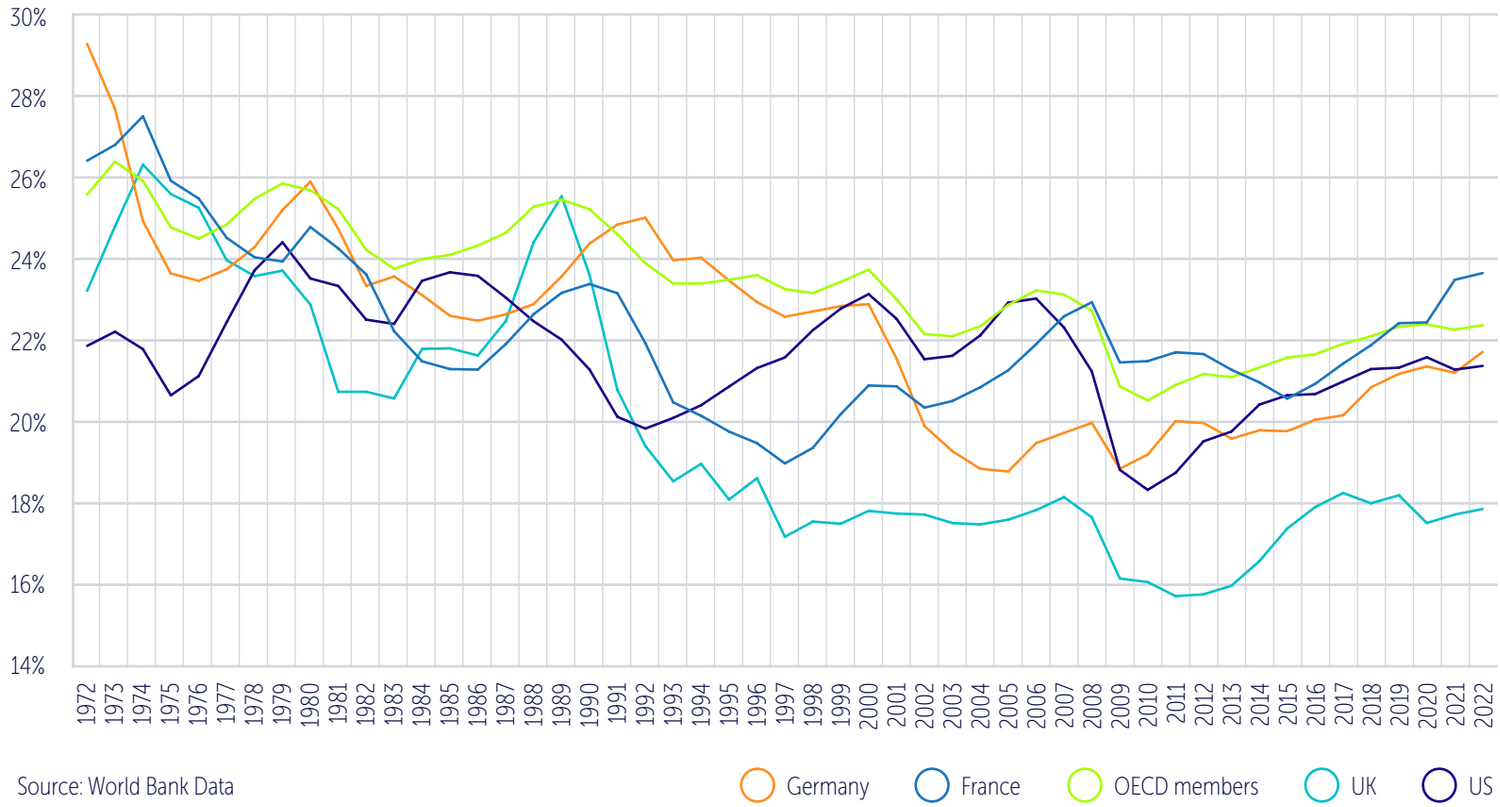
In Professor Gordon's view the second industrial revolution (IR #2), which brought electricity, the internal combustion engine and running water, was the most important for fuelling the productivity boom. Its innovations hit their sweet spot just after WW2:

> *"During the two decades 1950-70 the benefits of the IR #2 were still transforming the economy, including air conditioning, home appliances, and the interstate highway system. After 1970 productivity growth slowed markedly, most plausibly because the main ideas of IR #2 had by and large been implemented by then."*

The US experienced an uptick in productivity growth in the 1980s and early 1990s due to the third industrial revolution (IR #3) but its effects didn't last as long:

> *"The computer and Internet revolution (IR #3) began around 1960 and reached its climax in the dot.com era of the late 1990s, but its main impact on productivity has withered away in the past eight years. Many of the inventions that replaced tedious and repetitive clerical labor by computers happened a long time ago, in the 1970s and 1980s. Invention since 2000 has centered on entertainment and communication devices that are smaller, smarter, and more capable, but do not fundamentally change labor productivity or the standard of living in the way that electric light, motor cars, or indoor plumbing changed it."*

GROSS FIXED CAPITAL FORMATION (% OF GDP)



Source: World Bank Data

Professor Gordon pointed out that the slowdown in productivity growth coincided with the issuing of a record number of new patents in the US.

McKinsey Global Institute (MGI) made a similar observation in its major report on productivity stagnation in 2018, citing the waning of the 1990s ICT-enabled productivity boom as one of the contributing factors. It too noted that the developments since 2000, of the mobile internet, smartphones, mobile GPS and cloud-based services, while transforming the way many of us live, resulted in little measurable impact on productivity.

Predictions of a plateau in economic growth, while somewhat persuasive, have quite terrifying implications for a society that has assumptions predicated on a certain level of economic growth.

"The common trend of declining business dynamism in the US, UK, and Europe suggests global factors are at play, such as weak technology diffusion."

THE PRODUCTIVITY INSTITUTE

2.6

DECLINE IN BUSINESS DYNAMISM

One of the more concerning findings in the MGI report was that what they describe as 'jumping' organisations (the high productivity growth ones) form a much lower proportion of western economies than they did in previous decades. Across the western economies, firms with rapidly accelerating productivity growth account for less than 5% of the economy – too small a part to have an impact on aggregate productivity growth. This is consistent with Bank of England research which found that even the UK's leading edge firms are not as leading edge as they used to be.

International economic organisations have noted that the 'creative destruction' that is supposed to refresh capitalist economies has slowed down. The process that sees less productive firms fail and be replaced by more productive ones has stalled. The IMF reported a decline in business dynamism over the past two decades, remarking:

> *"There are fewer firms with very fast growth, and less market experimentation more broadly."*

An OECD study across 18 countries (including the UK and US) found similar results. The rate of job creation and destruction caused by the entry and exit of businesses has fallen. It is a similar story for rates of task, job and sector re-allocation in employment.

The Productivity Institute notes that falling business dynamism is a feature of many economies and suggest that the slow spread of technology may be one of the common factors behind it.

> *"Job reallocation rate – the rate at which jobs are created, destroyed, or moved within an economy over a specific period of time – has also declined in the UK, as well as in Europe. There have been long-term decreases in start-up activity across many countries, alongside lower levels of high-growth firms. Notably, there also appears to be a fall in the responsiveness of firms within the economy – they are less responsive in terms of job reallocation when faced with changes to their environment, such as technology shocks.*
>
> *The common trend of declining business dynamism in the US, UK, and Europe suggests global factors are at play, such as weak technology diffusion."*

In October 2024, a report by the Bank of International Settlements warned that productivity stagnation is a *"significant risk for the global economy"*. It cited a widespread lack of business dynamism across the developed economies, with the exception of the US which, at this point, was still benefitting from the Biden administration's interventionist policies.

> *"The United States stands as a notable exception. There, productivity growth has been robust. This performance is in line with strong business dynamism and investment starting around the Covid-19 crisis, partly spurred by expansionary fiscal policy. In particular, incentives for investment in high-tech manufacturing and clean energy have catalysed private investment.*
>
> *By contrast, in most other countries, a lack of business dynamism and weak investment are pervasive. For instance, in Europe, the investment share of GDP has been significantly lower than that in the United States over the past decade."*

The recent rise in US productivity has coincided with significant advances in technology and a heavy investment in AI companies, propelling the US stock market to record highs. Economists disagree about whether this is, in fact, the start of a technology-enabled productivity boost. Giles Wilkes of Flint Global is sceptical, arguing that the US has seen a resurgence of creative destruction since the Covid pandemic.

> *"Something seemed to click during the covid pandemic: the US approach was to allow more job separations and business reallocations. A loss of dynamism and beneficial reallocation in the UK is responsible for a fair chunk of our problems. Has the US avoided this problem? It saw record startups after Covid and its interventions did not focus as hard on keeping workers in the same job.*
>
> *It may be thousands of small reallocations, rather than two or three humungous Trillion Dollar success stories, that really explains the difference."*

2.7

DECLINING HUMAN CAPITAL

In parallel with falling investment and business dynamism there has been a decline in human capital. There is much discussion of the need to re-skill the workforce for the coming tech revolution but a lot less about how that might actually happen. In recent decades, the re-skilling record of the advanced economies has been poor.

The last three decades have seen a steady shift in the composition of the workforce in advanced economies – the hollowing out or polarisation of the labour market, with the disappearance of 'mid-level' administrative and skilled manual jobs and a corresponding increase in professional and technical employment. As the OECD noted, one effect of this transition has been to remove the mid-level 'ladder' jobs that provide career progression for those with fewer qualifications.

> *"Workers without a tertiary degree are sliding down the job ladder. Compared with twenty years ago, workers without a tertiary degree are less likely to work in middle-skill occupations. This has been matched almost exactly by an increase in low-skill employment for this group."*

The OECD noted that this occupational polarisation has occurred alongside a polarisation in education and learning and development opportunities. As the proportion of the population staying on to higher education has increased, the gap between them and other workers has widened.

> *"Even before the pandemic, only two out of ten low-educated adults took part in formal or on-the-job training, compared to six out of ten high-educated adults."*

There is also a polarisation in the type of training offered, with much of that available to lower paid workers being compliance based.

Much of today's adult training is compliance- or safety-driven and of quite short duration; this may be insufficient to meet the upskilling and reskilling needs of fast-changing labour markets.

As the jobs which once provided career progression disappear, the training that went with them seems to be in short supply too. Employer investment in training has declined over the past 15 years. The proportion of workers undergoing training, the amount of time they spend on courses and the size of training budgets all show a marked reduction since the middle of the last decade.

In January 2026, the IMF warned that the rapid deployment of AI may reinforce occupational polarisation by increasing the market power of the highly-skilled, raising demand for low-skill manual services at the lower end of the pay distribution while effectively hollowing out the middle of the workforce. Without increased investment from governments and employers, much of the workforce will not be able to re-skill quickly enough, thereby reinforcing the polarisation of employment.

A NOD TO GEOPOLITICS

As with so much at the moment, the development of technology is likely to be affected by geopolitics. We don't intend to examine the impact of rapidly evolving international tensions in this report because we discussed the subject at length in PARC's 2025 report, *Is Your Organisation Built to Adapt and Survive?* Suffice to say, increased volatility is leading to a rise in economic nationalism which inevitably means that, over the coming years, more business decisions will be taken on the grounds of politics and national security.

There are enough calls for Europe to de-couple from US technology for political and market analysts to start taking them seriously. President Trump's highly-publicised dispute with Anthropic's CEO has caused defence companies to drop its AI product Claude while also seemingly raising its popularity elsewhere. AI, with its high electricity consumption, is likely to be affected by the higher energy costs that will result from the war in Iran. The geopolitical situation will probably remain volatile for some time. With the International Energy Agency warning of *"a major energy crisis, including the largest supply disruption in the history of the global oil market"*, it would be surprising if this did not have an impact on the development and diffusion of AI. In line with the mid-2020s zeitgeist, politics is now part of the mix wherever you look. It will inevitably be a factor in decisions about technology for many organisations.

"Using the new technologies requires complementary investments. These are needed in physical (wired and wireless broadband and data centre) infrastructure, and in organisational change. Of these, the latter seems to be the hardest."

PROFESSOR DIANE COYLE,
PRODUCTIVITY INSTITUTE

3.0

INNOVATION – IT'S THE ORGANISATION, STUPID!

When we talk about innovation it is often in the context of great technological leaps. We tend to think of major inventions or scientific breakthroughs. Much of the public discussion focuses either on inventors, entrepreneurs and startups coming up with big ideas, or on government and big companies investing large sums of money to encourage them to do so.

However many of the innovations that enabled the growth of capitalism and the industrial revolutions were not technological but organisational. Economist Tim Harford cites double-entry bookkeeping, insurance and the limited liability company among the *Fifty Things That Made The Modern Economy.* Breakthrough technology alone is not the only factor in increasing productivity. Innovative technology requires organisational innovation to make it effective.

Chris Dillow, former chief economist at Investors' Chronicle, gives an example from the second industrial revolution as factories shifted from steam power to electricity:

> *"Even potentially productive investments don't yield big immediate rises in aggregate output. 19th Century factories tell us one reason why. For years, electrification of these did little to raise productivity. Until someone realized that electricity meant that machines didn't have to be clustered close to a driveshaft but could instead be arranged linearly – which allowed for more efficient workflow and the development of the production line. To be really useful, technological change often requires organizational change. And that can take many years."*

Professor Erik Brynjolfsson, a prolific writer on the relationship between technology and productivity, came up with the term Productivity J-Curve to describe the effect of the investment needed in the organisational innovations required to exploit technology. This, he argued, causes a productivity dip before the productivity boost, which comes some time later.

> *"General purpose technologies (GPTs) such as AI enable and require significant complementary investments, including co-invention of new processes, products, business models and human capital."*

Professor Diane Coyle of the Productivity Institute challenges the idea of the technological plateau pointing out that some organisations are finding ways to raise productivity. This then raises the question of why more firms are not doing so.

> *"If some firms can use digital technologies so successfully, why can the rest not manage to do so? The answer seems linked to those complementary investments – the general challenge of reorganising production to adopt innovations.*
>
> *Using the new technologies requires complementary investments. These are needed in physical (wired and wireless broadband and data centre) infrastructure, and in organisational change. Of these, the latter seems to be the hardest."*

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3.1

LESSONS FROM THE 1990S

The last period of sustained productivity growth in the G7 economies came during the 1990s and was particularly strong in the US. Much of it has been attributed to the adoption of Information and Communication Technology (ICT). This makes it an interesting case study for the current period, when we are hoping that similar technological breakthroughs will see the return of high productivity growth.

As the McKinsey Global Institute research (discussed in Section 2) noted, many of the companies that invested heavily in IT in the 1980s and early 1990s did not realise the productivity gains from it.

> *"Productivity gains were not automatic and did not occur in all industries that invested heavily in ICT. Instead, real productivity gains required significant changes in business process, as well as managerial and technical innovation."*

Or, to put it another way, the productivity growth of the 1990s was due to innovation in technology combined with innovation in organisation.

The McKinsey research identified 'jumping' organisations, which accounted for the bulk of the jump in productivity growth, and 'paradox' organisations which, despite large increases in IT intensity, did not experience productivity growth acceleration. The researchers also found that there was *"no dominant answer to where and how IT had high impact on productivity"*. No single application emerged as the 'killer application'.

The IT implementations that had a high impact on productivity shared three characteristics:

- **Tailored to specific business processes and linked to performance levers** – often embedding these performance requirements and processes into the IT itself
- **Deployed in a sequence that built capabilities over time** – IT and business skills were developed over a period that allowed previous IT investments to be leveraged to develop the next phase.
- **Co-evolved with managerial and technical innovation** – technology was used to change processes and create new products incrementally.

The research also found that the advantages gained by the organisations was difficult to sustain because the productivity improvements gained by the innovators were often easy for competitors to replicate. The IT investments were more likely to remain differentiating if they were coupled with significant changes to business processes and the associated learning effects.

The study concluded that IT was critical to the strong productivity growth in the US economy but this was because it enabled managerial innovation. Its impact varied significantly depending on where and how it was deployed.

Similar leaps in productivity did not occur in most European economies during the same period. Research by the Centre for Economic Performance (CEP) found that European countries had a similar productivity acceleration as the United States in IT-producing sectors (such as semiconductors and computers) but failed to achieve the spectacular levels of productivity growth in the sectors that used IT intensively. This raised the question that, given the availability of similar IT throughout the world at broadly similar prices, why had European firms not achieved greater productivity gains? The answer, disappointingly for European managers, was that US companies were simply better at exploiting the technology in the ways discussed above – so much so that US subsidiaries in Europe significantly outperformed the 'native' firms. The paper, entitled *Americans Do IT Better: US Multinationals and the Productivity Miracle* found that US management practices were more compatible with the exploitation of technology.

> *"If US multinationals partially transfer their business models to their overseas affiliates – and a walk into McDonald's or Starbucks anywhere in Europe suggests that this is not an unreasonable assumption – then analyzing the IT performance of US multinational establishments in Europe should be informative. Finding a systematically better use of IT by American firms outside the United States suggests that we should take the US management hypothesis seriously."*

The CEP pointed out that the 'management gap' between US and European firms appears to be a longstanding phenomenon, quoting from the postwar Marshall Plan in 1947:

> *"Efficient management is the single most significant factor in the American productivity advantage."*

This, they argue, is particularly so in the case of people management practices. The results of their findings don't necessarily mean that US people management practices are 'better' but they are more complementary to making productivity gains from IT.

> *"The successful deployment of IT requires substantial changes in the way that employees work, including the ability to decentralize decision making so employees can experiment. High outcomes on our people management scores will reflect this. We show that this index of people management is higher in US multinationals than in non-US multinationals (and domestic firms). In particular, US firms tend to be more aggressive in promoting and rewarding high performing workers and removing underperforming workers."*

In a report on productivity for the European Commission, the CEP made similar observations about organisational capital.

A report by the LSE's Centre for Economic Performance on the Economic impact of ICT in Europe studied the technology boom of the 1990s and found that US firms operating in Europe were more productive and had greater organisational capital.

> *The evidence on US multinationals operating in Europe suggests that approximately half of the US-EU productivity differential over the 1995-2005 period can be accounted for by organisational capital.*
>
> *US firms are more productive with higher levels of organisational capital even in environments characterised by strict labour and product market regulation.*

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3.2

ORGANISATIONAL CAPITAL AS DISTINCT FROM HUMAN OR FINANCIAL CAPITAL

A significant body of research on the link between ICT and productivity focuses on the concept of organisational capital. This is distinct from financial and human capital in that it refers to the embedded systems and practices that exist within an organisation. This isn't simply a measure of management ability – it is about behaviours and processes within an organisation that have been encoded over time. As Nina Jorden, Assistant Professor at the University of Cambridge's Bennett School of Public Policy remarked:

> *"A lot of focus is put on skills and it's definitely part of the story but organisational capital is more than that. I may have 50 greatly skilled people but if they have not established a process of working together to use the technology they may be outperformed by a group of lower skilled people who are better organised. You see this in football teams. Sometimes a football team that works well together can outperform a team with much more expensive players."*

Erik Brynjolfsson explains the concept:

> *"Our understanding of the role of organizational capital has been shaped in an important way through visits and interviews with managers who have implemented information systems projects and by teaching case studies on such projects. Some common themes in these cases are the following:*
>
> *Computers and software are just the tip of a much larger iceberg of implementation costs. Successful projects require enormous management attention, worker training, and changes in seemingly unrelated areas of the business and perhaps the entire industry. Successful chief information officers are now expected to combine knowledge of technology with an understanding of the firm's business opportunities and challenges."*

"Computerization is not simply a synonym for simply buying computer capital; instead it involves a broader collection of complementary investments and innovations, some of which take years to implement."

ECONOMIST PROFESSOR ERIK BRYNJOLFSSON

Professor Brynjolfsson's study of 527 US firms found that the contribution of investment in computers to firm level productivity was accompanied by significantly larger investments in organisational capital.

> *"Business and academic literature on computerization emphasizes the importance of large and small complementary changes, including changes in business processes, organization structure and innovations in customer and supplier relations. These changes can be thought of as complementary investments in 'organizational capital' that may be up to 10 times as large as the direct investments in computers."*

The study's overall conclusion was that computers contributed to productivity but that this took time and only happened when complementary investments in organisational capital were made.

> *"The pattern of rising growth contributions over longer time periods suggests that computers are part of a larger system of technological and organizational change that increases firm-level productivity over time. This is consistent with the conception of computers as a general-purpose technology. Computerization is not simply a synonym for simply buying computer capital; instead it involves a broader collection of complementary investments and innovations, some of which take years to implement.*
>
> *Although computer investment generates useful returns in its first years of service, we find that greater output contributions accrue over time. The results are consistent with the hypothesis that the long-term growth contribution of computerization represents the combined contribution of computers and complementary organizational investment."*

The UK Commission for Employment and Skills made a similar point about the UK workforce. It is the organisation and deployment that makes the difference.

> *"The UK has a large highly-skilled workforce. Yet these skills are only valuable to the extent that they can be put to use in the workplace. Even when matched with the very best of technology, if skilled workers aren't managed and organised effectively, then their contribution to economic growth will be limited.*
>
> *If growth depends on the combination of skills with organisation and technology, then the way that the workplace is managed becomes a critical factor in our long-term economic prospects."*

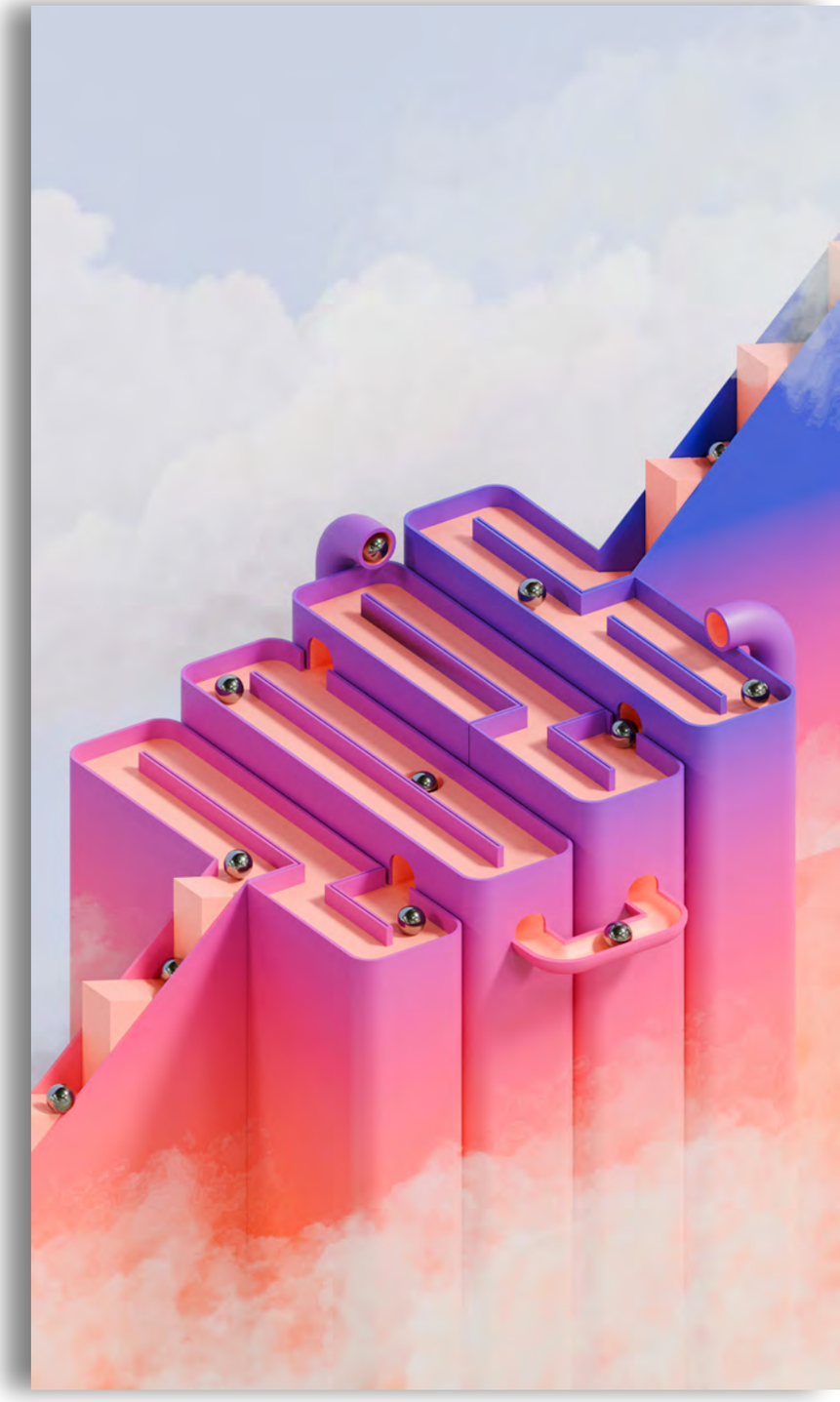
As Nina Jorden explains, this has implications for organisational hierarchies and structures:

> *"ICT expands information availability and coordination capacity, but only firms with the right managerial routines and decision rights can translate that into higher efficiency and better decisions."*

Organisational capital is:

- ***path dependent*** *– shaped by history, prior technologies and routines*
- ***slow to accumulate*** *– requires learning, experimentation, and often failure, and*
- ***internally political*** *– reallocates power, triggers resistance, and shifts identity and status.*

As so often with organisational change, internal politics can be a major obstacle to a company's ability to maximise the returns from technology.



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3.3

IS THE ORGANISATIONAL CAPACITY THERE?

If AI and other rapidly developing technologies are to deliver the next productivity leap, history shows that it will require a significant amount of non-tech work at organisational level. However, given what we know about falling business dynamism, chronically low levels of capital investment and falling investment in learning and development, there is a question about the capacity and ability of organisations to rise to this challenge.

Employers frequently complain about skills shortages but there is a significant body of evidence that are not always very good at deploying the skills they have. The under-use of skills and the lack of knowledge transfer in organisations has been the commented on by various OECD studies over the past decade.

> *"A large pool of highly-proficient workers does not automatically ensure the effective use of their skills at work.*
>
> *What happens inside the workplace – the way work is organised, and jobs are designed as well as the management practices adopted by the firm – is a key determinant of how skills are used."*

The design of jobs is likely to be crucial to any technology driven productivity boost. Some studies on the impact of technology on work, which we discuss in Section 4 below, suggest that AI will automate tasks but not necessarily entire jobs. The re-design of jobs will therefore be a critical component of the re-organisation of work. The OECD recommends redesigning jobs to use people's skills more effectively. Job rotation, work shadowing to spread knowledge, and greater autonomy and self-organisation, have all been shown to improve skill utilisation and the transfer of knowledge and good practice between workers and divisions within companies.

Managers are critical to this process. It is their understanding of the people in their teams and their creativity in deploying them that enables them to fully utilise their skills. The World Management Survey, a two-decade research programme led by Stanford University and the London School of Economics, found that 30% of the variation in productivity between countries can be explained by the quality of management practices in those countries. As former Bank of England Chief Economist Andy Haldane remarked:

> *"Looked at quantitatively, there is a statistically significant link between the quality of firms' management processes and practices and their productivity. And the effect is large. A one standard deviation improvement in the quality of management raises productivity by, on average, around 10%. This suggests potentially high returns to policies which improve the quality of management within companies."*

This is as true in high-tech environments as anywhere else. As Wharton's Ethan Mollick pointed out in 'Suits and Innovators', his study of 500 innovative high-tech firms, it was not the creatives who made the difference between success and failure, it was the middle managers (the 'Suits').

Strong organisations are the key to deploying talent and technology. Recruiting good people and investing in state-of-the-art tech are never enough on their own. Organisations provide the scaffolding which supports everything else and enables it to operate. Creativity and innovation are only of use when you have the organisational capability to deploy it. As CEO and tech investor Faisal Galaria put it:

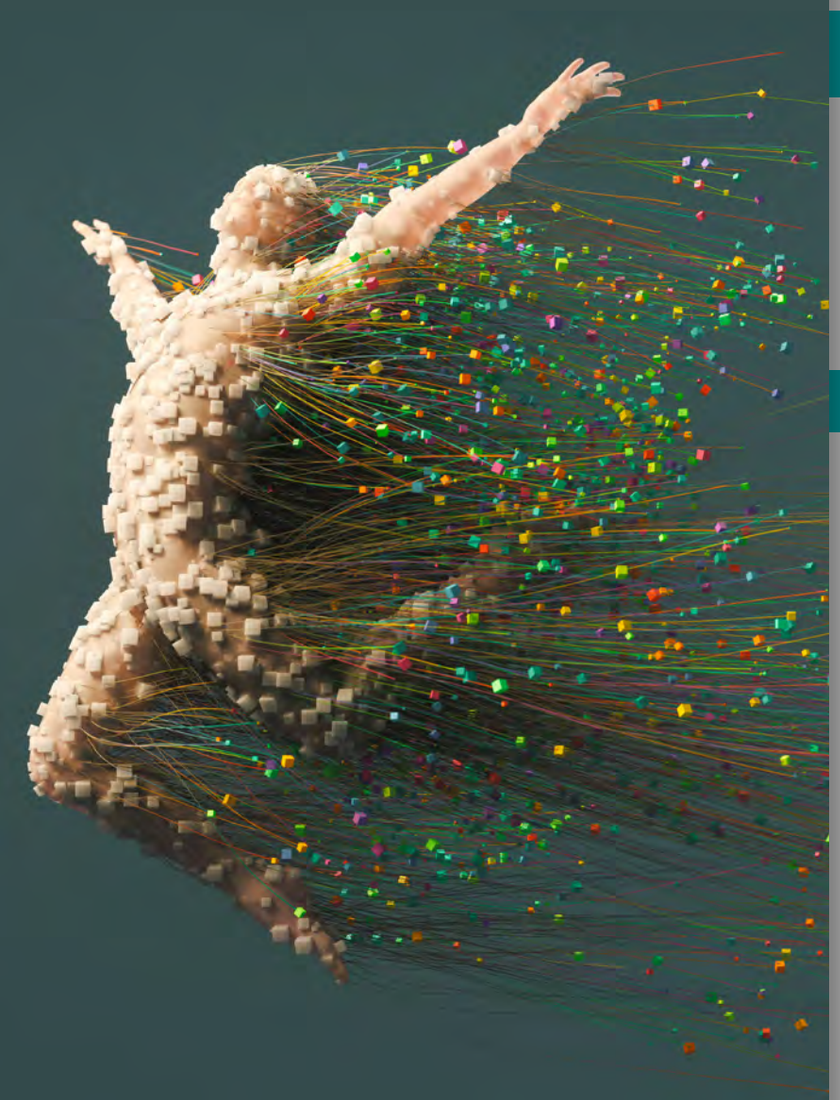
> *"Technology is fungible. It's the team that makes all the difference."*

This raises questions about the quality of an organisation's management. The World Management Survey found that, in many countries, a few organisations were driving the productivity increases with long tails of poorly managed firms in their wake.

As Henley's Professor Andrew Kakabadse told us in 2018, having worked with and researched hundreds of boards around the world, if you ask ten directors what their organisation's vision is, you will often get ten different answers. Something similar often happens when you ask them how the company makes a profit. Sir Charlie Mayfield's report, *How good is your business really?* commented on the dearth of information on strategy in companies' annual reports. It contains the following observation:

> *"At the highest level, research on annual reporting by EY found a large number of companies which did not explain how the company made money, and very few offering a clear, linked discussion of strategy, performance, risk and reward."*

There is a risk, as we discuss in the next section, that AI will just be let loose in organisations because managers don't have the skills or knowledge to direct and exploit it. Jobs, tasks, processes and structures will be redesigned but not in any ordered fashion. An article in *Personnel Today* in March 2026, reporting on a YouGov survey, described UK employees and their leaders as "***Winging it with AI***". It may be that allowing AI to grow organically within an organisation will miraculously lead to new ways of highly-productive working but there is no historical precedent for anything similar happening.



There was no sign of a large displacement of jobs due to technology.

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4.0

THE TECH REVOLUTION – WHY HASN'T IT HAPPENED AND IS IT JUST ABOUT TO?

4.1

WAITING FOR THE 'TECH REVOLUTION'?

So far, then, the picture has been one of stagnating GDP, chronically low productivity growth and falling business dynamism. While the shocks of the last two decades, such as the Global Financial Crisis and the Covid Pandemic haven't helped, there are signs that a productivity slowdown was under way from the early 2000s as productivity boosts from the postwar period, the fall of the Eastern Bloc and the 1990s technology boom have worn off.

Many exciting technological developments have appeared since 2007 but they seem to have had little or no impact on overall employment levels, productivity or the aggregate economic statistics. This feels somewhat frustrating because commentators have been talking about an imminent tech revolution for well over a decade now and there is still not much evidence for it.

It was 2013 when Carl Frey and Michael Osborne famously predicted that 47% of total US employment was at risk from automation. The term '4th Industrial Revolution' was popularised in 2016 by World Economic Forum founder Klaus Schwab to describe the coming together of rapid technological advances of the 21st Century, such as AI, robotics, the mobile internet, big data and cloud computing. The integration of these technologies, it is argued, will deliver a productivity boost similar to those brought about by steam power, electricity and the development of information technology in the late 20th Century.

But, as the then Resolution Foundation CEO Torsten Bell remarked in January 2024, more than a decade later, there was still little sign of Frey and Osborne's job apocalypse.

> *"What happened in the years immediately after the 2013 panic, while policy makers held never ending seminars on the robot risks? Employment levels rose year after year, repeatedly hitting record highs."*

In PARC's 2018 **Productivity** report we noted that employment rates were at near record levels in most advanced economies and that there was no sign of a large displacement of jobs due to technology. This has broadly been our conclusion when we re-visited this question in our subsequent reports in 2021 and 2025.

Over the last three years, though, the pace of change has picked up – or, at least, the pace of media reporting has. Some of this is due to the release of easily accessed AI software, such as ChatGPT and Claude, to the general public. For the first time, people could use it and gain an understanding of its capabilities. Inevitably, this has made AI more newsworthy than other technological developments. That and the large amounts of investment going into has ensured that the technology revolution has stayed in the headlines.

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4.2

DISCRIMINATIVE AND GENERATIVE AI

Sci-Fi writer Ted Chiang described the term 'Artificial Intelligence' as 'a poor choice of words in 1954', reflecting both the length of time the term has been around and the vagueness of its use. Much of what we now describe as AI has come about because of massive increases in computing power and the availability of digital online data. The development of algorithms that can recognise patterns has enabled computers to analyse and manipulate vast amounts of data at speed. Data, in this context, includes anything that has been digitised, including photographs and videos. It is therefore possible to create videos with lifelike images of people who don't exist or very realistic videos of real people saying things they haven't said.

In PARC's ***Is Your Organisation Built to Adapt and Survive?*** report, we looked at the distinction between Discriminative and Generative AI. Discriminative AI is designed to classify, recognise patterns and predict outcomes based on existing data. It provides high accuracy and is useful for the rapid analysis of large data sets. Generative AI draws data from much wider sources. It can create content such as text, images and videos. As an article on Data Science Dojo put it, Discriminative AI is like a detective while Generative AI is like a storyteller.

The adoption of Discriminative AI has been underway for some time. Its progress has been more evolutionary than revolutionary. Organisations are using it for analysing conversations, facial recognition, credit scoring, fraud detection, detecting antibiotic resistant microbes and identifying rare or aggressive cancers. The implementation process usually follows the traditional IT development and project management methodologies. In this way, it resembles previous technological developments. It is selected and implemented by the organisation's management in a structured way and is used, for the most part, to analyse the organisation's proprietary data or external data validated by the appropriate professionals.

As Professor Marleen Huysman of VU Amsterdam remarks, Discriminative AI looks like more powerful versions of the sort of systems we have been using to for decades.

"GenAI represents an inflection point in the evolution of AI technology. Earlier 'expert systems' encoded know-how as fixed 'if-then' rules; they could only handle situations their designers had already anticipated, which confined them to narrow, highly-structured applications: troubleshooting, medical diagnostics, and tax calculation. The subsequent generation of task-specific classificatory AI used machine learning for pattern recognition in large data sets; these tools were, and still are, trained for one specific classification purpose at a time: screening résumés, classifying radiology images, sorting seeds, predicting crime.

Generative AI, conversely, has no borders.

> *"GenAI models, by contrast, are task-agnostic, generative engines. Powered by transformer architectures, they do not classify to which bucket an input (a résumé, magnetic resonance imaging (MRI), and crime report) belongs; instead, they iteratively predict the next token in an output they are themselves composing."*

It is different from traditional IT systems in four significant ways:

1. **It draws data from a wide range of sources to generate new content.** This can be any form of digitised data, so photographs, videos and music can all be mixed together to create something that looks new, even though it is based on existing content
2. **The source of the data is opaque and therefore difficult to validate.** Most publicly available Generative AI uses a variety of sources and, though they provide links, the exact source of a particular result is often impossible to track.
3. **It works from prompts rather than code,** so variations in the way questions are asked can deliver very different results. Again, the process by which the technology arrives at its answers is very difficult to validate.
4. **It has been made publicly available and is therefore widely distributed.**

These factors make Generative AI very distinct from the ways in which technology has traditionally been implemented, managed, used and controlled in organisations. To stretch the metaphor above, the Detective has been accredited, works on evidence, has a structured development path and is governed by a set of professional standards. The Storyteller is a lot more fun and can hold people's attention for hours but nobody knows where he got his stories from or whether they are even close to being true.

In a recent study (due to be published later this year) Professor Huysman uses the metaphor of a 'spirited horse' to describe the thrills and spills of Generative AI:

> *"'Spiritedness' captures the duality of this technology, which is powerful and exciting, while also being frustrating and potentially dangerous. Like a spirited horse that offers its rider unprecedented speed and power, but can also put them and bystanders in danger."*

The fact that Generative AI has been so widely distributed also creates a novel problem for organisations – large numbers of people bringing their own technology to work.

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Source: Reza M Baygi and Marleen Huysman

4.3

SHADOW AI AND THE CHALLENGE OF 'ANARCHIC' TECH

Shadow AI is the use of artificial intelligence tools or systems without the approval, monitoring, or knowledge of an organisation's management, its IT professionals or its security teams. This can simply mean employees using AI to answer questions or create content or, more seriously, to interrogate the organisation's data or add self-written code to its systems.

As Professor Huysman pointed out, publicly available Large Language Models, such as ChatGPT, are being adopted in the same way as social media platforms were a decade ago. People learn to use them at home then bring them into the workplace. The implementation is therefore 'bottom up' rather than 'top down. Managers often have no idea how employees are using these tools and very little control over what they do with them.

Of course, employees bringing their own tools into work is nothing new but this has usually been the domain of specialist professionals. It is not unusual, in some specialist technical areas, for a few experts to be doing their own thing, without the explicit permission or full knowledge of management. Shadow AI is different. It spans all roles and levels in the company. For example, until recently only people with technical skills were capable of making unauthorised modifications to a company's systems. Now, user-generated code could come from almost anybody in the organisation. Access to technology has been 'democratised' beyond the domain of the IT practitioner.

When faced with demanding managers it is tempting for employees to take short-cuts by getting ChatGPT to write code, or dropping the entire senior executive pay database into Claude to do an analysis for the next RemCo.

A Microsoft UK survey of 2,003 employees of large and medium-sized businesses found that 71% had used unapproved consumer AI tools at work and 51% were doing so every week.

A study by MIT noted:

> *"AI is already transforming work, just not through official channels. Our research uncovered a thriving 'shadow AI economy' where employees use personal ChatGPT accounts, Claude subscriptions, and other consumer tools to automate significant portions of their jobs, often without IT knowledge or approval.*
>
> *The scale is remarkable. While only 40% of companies say they purchased an official LLM subscription, workers from over 90% of the companies we surveyed reported regular use of personal AI tools for work tasks. In fact, almost every single person used an LLM in some form for their work."*

SOCIO TECHNICAL CHARACTERISTIC OF GEN AI USE	WHAT CHANGES IN PRACTICE	RESULTING STRAIN ON SOCIAL FABRIC *(laissez-faire scenario)*
Multipurpose usability: Worker can use the same GenAI tools to perform a wide range of tasks across domains	Rise of GenAI polymaths: Spread of AI-generalists who confidently dabble outside their usual roles	Disrupts patterns of expert consultation and contribution in everyday work
Unpredictable plausibility: Workers can take GenAI's plausible sounding but unpredictable output and disseminate it uncritically	Rise of GenAI oracles: Proliferation of authoritative but unreliable information and content	Disrupts patterns of earning and bestowing trust amongst coworkers
Hyper personalisability: Workers can actively or passively fine-turn their own idiosyncratic personal 'AI companions'	Rise of Gen AI sirens: Over reliance on convenient but isolating bespoke 'AI companions'	Disrupts patterns of spontaneous, informal encounters and collegial bonding

The MIT report also found that Shadow AI was hampering the implementation of more business-focused applications, with users going back to their own IT tools rather than using the ones the company had developed.

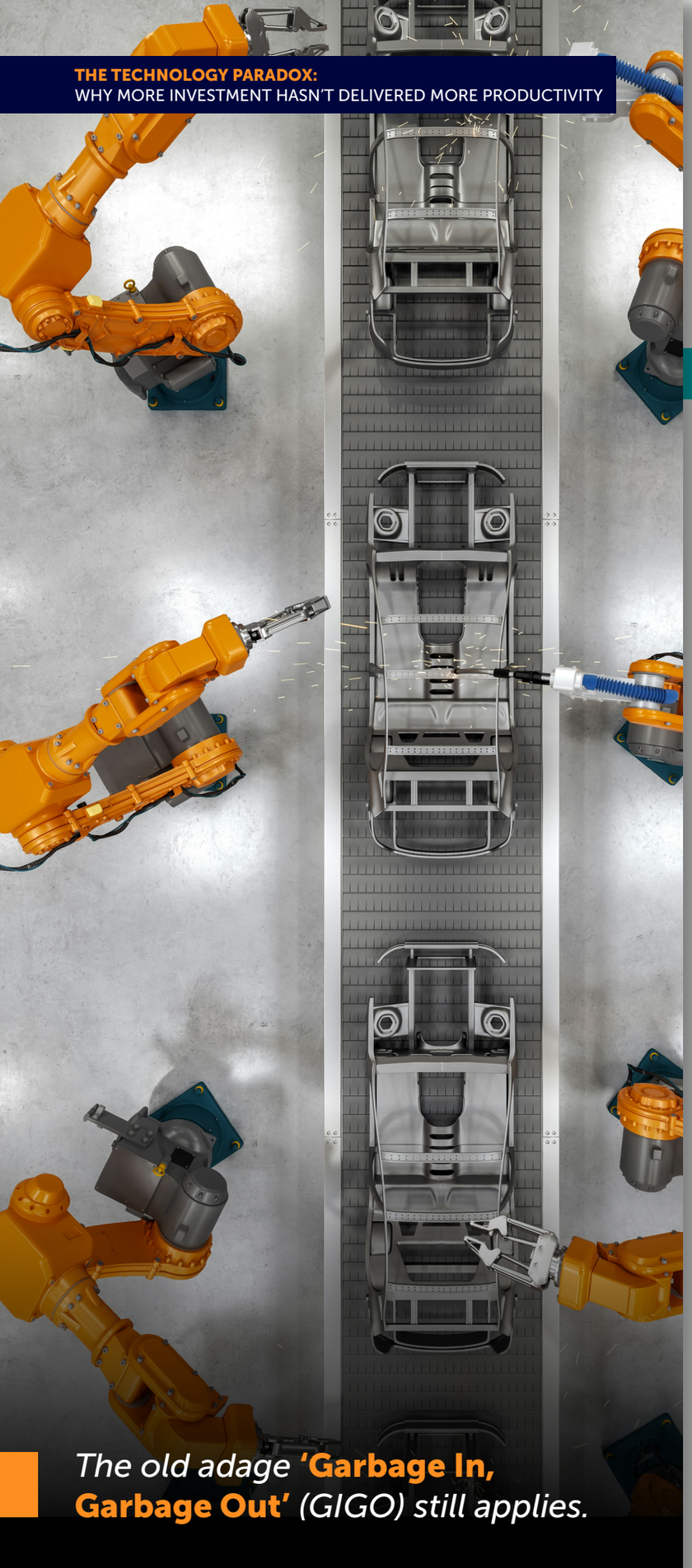
The widespread adoption of Generative AI is already undermining traditional organisational structures. Professor Huysman's research has found that Generative AI is placing a strain on the social fabric of organisations.

> *"Expertise has long been structured around professional authority and jurisdiction over specific tasks that require extensive training, qualifications, and experience, yielding domain experts who act as gatekeepers and custodians of specialized knowledge, skills, and judgment.*
>
> *With the multipurpose usability of GenAI tools, non-specialists can increasingly bypass these traditional pathways, independently handling tasks that once required domain expertise. This 'democratization of expertise' can lead workers to confidently dabble in tasks outside their usual roles."*

Left unchecked, the characteristics of Generative AI and the way employees use it can create self-reinforcing disruptions that multiply errors, erode trust, weaken the flow of expertise and stifle the development of future talent.

Professor Huysman and her colleagues suggest a number of measures organisations might use to take control of and harness Generative AI:

- **Expertise** – Create tiered workflows where anyone can use GenAI for low-stakes tasks, but higher-stakes work must pass through expert review. This keeps specialists visible and valued, while letting others build broader skills through safe experimentation.
- **Trust** – Treat GenAI use as the default assumption rather than a guilty secret. Practices like 'audit buddies', devil's advocate sessions, and shared hallucination logs shift trust from who wrote something to how it was produced and verified.
- **Collegiality** – Rather than banning personal AI tools, bring them into the open. Refinement checkpoints, team-shared AI assistants, and designated AI-free zones create opportunities for spontaneous human interaction Inside these zones, employees exchange small talk, share half-formed ideas, and so on – letting unstructured chatter spill over and fostering collegiality among colleagues who might never have crossed paths.



*The old adage **'Garbage In, Garbage Out'** (GIGO) still applies.*

4.4

THE GIGO RULE STILL APPLIES

A number of studies have cited data as a cause of failure in AI implementations. Large Language Models require large amounts of data and, however powerful the tools seem to be, they are only as good as the data they are trained on or are interrogating. Most of the popular tools will use data from the internet unless they are specifically prompted not to. This has led to the phenomenon of 'enshittification' labelled by tech journalist Cory Doctorow and enthusiastically taken up by AI sceptic Gary Marcus. Content drawn from false information on the internet is processed by LLMs into more false content until *"the search engines are sucking in each other's garbage"*.

Like all IT systems, AI is only as good as the data on which it is set to work. The old adage **'Garbage In, Garbage Out'** (GIGO) still applies. However, we know from data released by the AI providers that general information queries are one of the main uses of generative AI. Even if specific sources of data are specified, there is no guarantee that the query is actually referring exclusively to that data. Inaccurate data is the cause of what has been termed AI 'hallucination' – Generative AI's propensity to make things up. This anthropomorphism is unhelpful as it gives the impression that the technology is somehow 'alive'. Hallucination is simply a new term for GIGO. Generative AI is only as good as the data it accesses and is trained on. If it is drawing that data from the wider internet there is no way of checking the accuracy of that data. In short, Generative AI's lack of accuracy is because it is non-discriminative.

4.5

AGENTIC AI

A major development during 2025 was Agentic AI – systems that can accomplish a specific goal with limited supervision. The AI agents are machine learning models that mimic human decision-making. By linking these agents together, each one can perform a specific subtask in a process. Professor Kate Kellog of MIT gives an example:

> *"An AI agent could plan a vacation using input from a consumer along with API access to specific web sites, emails, and communications platforms like Slack to decide what hotels or flights work best. With credit card permissions, the agent could book and pay for the entire transaction without human involvement."*

While the headlines suggest Agentic AI is widespread, examples of its end-to-end implementation are more difficult to come by. As Professor Huysman explained, many of the implementations are more like traditional Robotic Process Automation but with some AI elements added. Nevertheless, this is a rapidly moving technology, and many organisations are experimenting with elements of it, even if they haven't yet fully integrated it into their processes. A survey of 2000 employers published by US data services organisation Snowflake in March 2026 noted:

> *"While agentic AI solutions are not widespread, and often are not yet very complex, our research shows that agents are already gaining traction among early gen AI adopters."*

The same survey also found that the technology is creating jobs as well as destroying them, as engineering teams reorganise around AI systems.

A McKinsey study published in January 2026 reported:

> *"AI is becoming widely used, but only a minority of companies are scaling more sophisticated capabilities, such as agents, into workstreams in ways that can transform their businesses. The adoption of AI agents at scale is most advanced in the technology industry, where functions including software engineering and IT report the highest levels of scaled use."*

The concentration of AI agent use in the technology industry and technology functions goes some way to explaining the distorted picture you get from reading the technology media, where you get the impression that 'everybody is doing it'. In the McKinsey research, the HR function is some way down the adoption league table as, somewhat surprisingly, is supply chain and inventory management. Less surprisingly, the study found that redesigning workflows is a key success factor, with most of the high performers reorganising around AI.

MIT Sloan's Professor Sinan Aral remarked on the imbalance between the rate of technology development and the contrasting lack of focus on the interaction between AI agents and humans.

> *"We are already well into the Agentic Age. Companies are developing and deploying autonomous, multimodal AI agents in a vast array of tasks. But our understanding of how to work with AI agents to maximize productivity and performance, as well as the societal implications of this dramatic turn toward agentic AI, is nascent, if not nonexistent."*

4.6

PHYSICAL AI

The merging of AI and robot technology is where there may be the biggest potential for dramatic productivity shifts. Combining machine learning with robotics creates machines that can learn. As an article in CNET put it, Physical AI is what happens when AI leaves your device and starts moving through the real world. The most cited example is the self-driving car but the more imminent applications are likely to be in warehouses and logistics.

In October 2024, China completed the world's first unmanned road resurfacing project, covering 98 miles of road without the involvement of any construction workers. This is still emerging technology and it is likely to be constrained by safety concerns. The impact of an AI-enabled machine making a mistake is likely to be significantly more serious than 'hallucinations' turning up in an AI generated report. As Lucy Colback noted in the FT in January, with less data from which to 'learn' the training of Physical AI takes longer.

> *"Large language models can ingest everything on the internet to educate themselves but data connected to real-world environments is harder to come by. It would be risky to allow a robot to wander around a warehouse while it learnt the layout, and it would be impossible to ensure it encountered all variables. Ethics considerations can also make data hard to collect, for instance in surgical procedures."*

Nevertheless, a report by PwC in March 2026 forecasts that Physical AI will transition from early pilots to scaled commercial deployment over the next 3 to 5 years.

> *"Physical AI now exceeds human performance in constrained tasks requiring high precision, repetition, advanced sensing, and rapid control loops. These asymmetries explain why early commercial success is concentrated in logistics, manufacturing, and mobility rather than general robotics."*

The FT's verdict on Physical AI's impact on work is that a lot of jobs will change rather than be eliminated altogether.

> *"The nature and distribution of jobs will change with different needs. In many industrial environments, human jobs are likely to become more technical: rather than carrying out operational tasks, workers will maintain and operate robot workers. Some manual jobs might disappear – repetitive assembly-line work, for instance – while intricate trades such as electrics and plumbing will still be difficult for robots to carry out."*

4.7

ARE WE FACING A JOB APOCALYPSE?

In June 2025, the OECD announced that employment and labour force participation rates were still at record highs across the advanced economies and warned of labour shortages acting as a drag on growth as populations age. The IMF's Economic Outlook in January 2026 had a similar feel, the prospect of rapid economic growth due to AI adoption providing the only bright spot in what was otherwise a downbeat assessment.

> *"On the upside, rapid adoption of AI, possibly facilitated by the ongoing surge in AI-related investment in both hard and soft infrastructure, could significantly improve productivity and boost medium-term growth prospects sooner rather than later. The fast pace of innovations might foster creative destruction and revive business dynamism."*

Of course, the optimism came with a caveat:

> *"Should expectations about AI-driven productivity gains turn out to be overly optimistic and outcomes disappoint, a sharp drop in real investment in the high-tech sector as well as in spending on AI adoption in other sectors and a more prolonged correction in stock market valuations – which have increasingly been lifted by only a few technology firms – could ensue.*
>
> *The rapid obsolescence of unused or misaligned assets, costly reallocation of capital and labor accompanied by a decline in business dynamism, and negative wealth effects would weigh on private consumption and investment."*

Recent statements by senior figures in the industry have predicted imminent economic disruption and job displacement. Mustafa Suleyman, CEO of Microsoft AI, **told the FT in February 2026**:

> *"White-collar work, where you're sitting down at a computer, either being a lawyer or an accountant or a project manager or a marketing person – most of those tasks will be fully automated by an AI within the next 12 to 18 months."*

While the automation of tasks on this scale would not necessarily imply the complete extinction of lawyers, accountants and project managers it would imply significant job losses. The implications of a displacement of workers on this scale over such a short time would be huge. The effect on government revenues alone would be enough to cause a fiscal crisis and the suppression of demand would wreak havoc on the wider economy. As the FT's Joel Suss **pointed out**:

> *"The pace of change and the labour market disruption could have negative aggregate demand implications. Who will buy all the AI-produced goods and services if unemployment shoots up and the labour share of total income heads to zero?"*

Slightly less apocalyptic and with a slightly longer timescale was the Citrini Research report, also in February 2026, projecting a US unemployment more than doubling to 10.2% and a 38% fall in the S&P 500 by 2028. FT Alphaville **commentators** were **unimpressed** but the report was enough to **rattle markets**.

Even so, most economists and commentators were still not convinced. As the Chief Economist at Apollo asset management **remarked**:

> *"AI is everywhere except in the incoming macroeconomic data. Maybe there is a J-curve effect for AI, where it takes time for AI to show up in the macro data. Maybe not."*

In the Autumn of 2025, there were a number of downsizing announcements by major organisations which cited AI as a factor in reducing workforce numbers. A deeper dive into the factors behind the job-shedding suggests that blaming AI may be more a reflection of press-release rhetoric than anything actually happening on the ground. One analyst described this phenomenon as 'scapegoat tactics'.

Digging deeper, the picture is less clear. Erik Brynjolfsson's November 2025 paper ***Canaries in the Coal Mine?*** found that workers aged 22-25 in AI-exposed occupations, such as software development and customer support, experienced 16% employment declines while employment for experienced workers remained stable. However, a review of academic studies and economic data in January 2026 by Bank of England economists noted that other studies from the US and UK had made similar findings to Brynjolfsson's but pointed out that this may simply be due to the economic slowdown which tends to have a disproportionate impact on younger workers anyway:

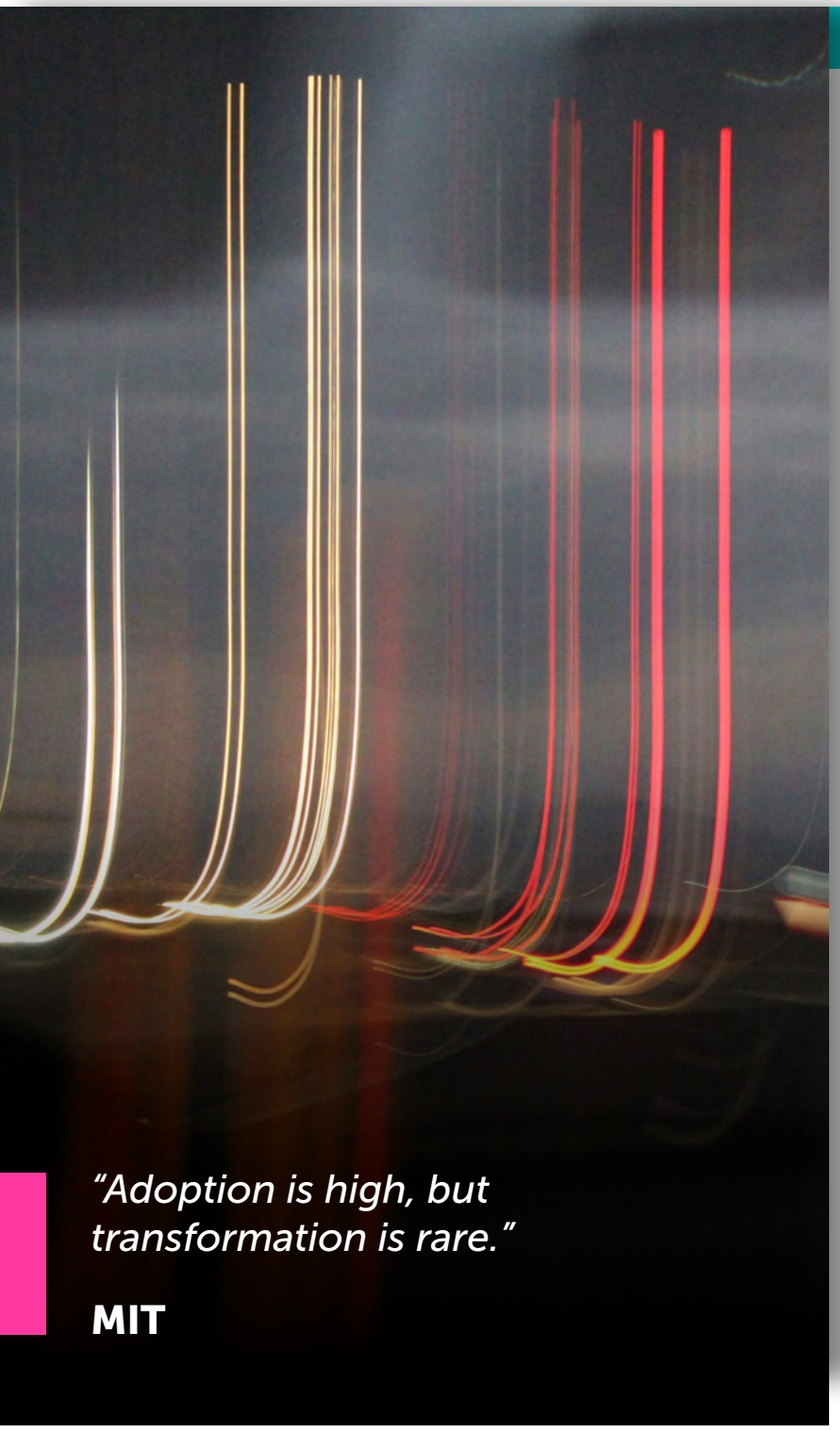
> *"AI likely remains an amplifier rather than the sole driver of the slowing in youth employment. While AI may be amplifying effects for hiring of new entrants in AI-exposed sectors, the broader slowdown appears to also reflect typical labour market downturns, where younger and less experienced workers are disproportionately affected."*

The study went on to conclude that, so far, AI has had little effect on overall labour market dynamics.

In February 2026, the **US National Bureau of Economic Research** (NBER) published a study of 6,000 firms in the US, UK, Germany and Australia, which found that 80% of the firms reported little or no impact on productivity from using AI over the previous three years. The study noted a sharp increase in the use of AI by employees since the beginning of 2025 and an expectation by employers that productivity would increase over the next three years. There was a significant difference in expectations between frontline employees and senior managers:

> *"Over the next three years, firms predict that the adoption of AI will boost productivity by around 1.4%, on average, while reducing employment by around 0.7%. This is in sharp contrast to expectations of employees, who expected higher job creation as a result of AI, along with smaller productivity gains over the next three years."*

Reports in February 2026 that IBM was **tripling its entry-level hiring** after realising AI's limitations suggests that the extent to which technology is replacing workers is still largely unknown.



4.8

ARE WE AT THE START OF THE PRODUCTIVITY J-CURVE?

It is a similar story with the data on productivity. As the Economist said in February 2026, whole economy evidence of productivity improvement is 'thin'. Massive investment in data centres is fuelling economic growth in the US and is starting to have an impact elsewhere but once you strip out those effects, there is little evidence that the application of AI in businesses is having much overall impact. A Yale University study, also in February 2026, came to a broadly similar conclusion.

The data, argues the Economist, suggests AI usage is still fairly mundane. In most workplaces it is used for information queries, writing assistance or generating computer code. While the workplace use is increasing at pace, it is unorganised and dependent on individual preferences. Using Chris Dillow's analogy, as we discussed in Section 2, the Economist doesn't believe we are at the take-off point yet:

> *"Improvements are usually made not just when workers use a new tool more often, but also when firms reorganise production around it. Early factories became only a bit more efficient when steam engines were replaced with electric motors; the real revolution came decades later after floor plans were redesigned to make the most of electric power. More recently, productivity growth was a disappointment for years after personal computers became widespread. It sped up only once firms adopted business models that exploited the technology to its full potential. Much of America's productivity revival in the 1990s came not from Silicon Valley but from retail, where computers transformed logistics and inventory management. There is little sign that AI has reached a similar stage."*

In other words, without the re-organisation of processes and business models, AI is simply something that some people are using to make some tasks easier and to generate a lot of content much of which may not be useable and in some cases may even be harmful.

A study by MIT in August 2025 concluded that, despite $30-40 billion investment into Generative AI, 95% of organisations were getting zero return. The report noted:

> *"Adoption is high, but transformation is rare. Only 5% of enterprises have AI tools integrated in workflows at scale. Most AI tools don't learn and don't integrate well into workflows."*

In January 2026 Gartner found that 50% of Generative AI projects had been abandoned before completion, citing lack of clear objectives, poor data and insufficient change management as key reasons. All of this will be familiar to anybody who has worked on a traditional IT implementation. Unsurprisingly, the same rules apply.

Nevertheless, there are some more positive indicators when individual firms are studied. Some have made significant productivity gains so the potential is clearly there. A study of European firms using AI, by the Centre for Economic Policy Research in February 2026, found little evidence of job displacement while finding an average improvement in productivity of 4%.

> *"The absence of negative employment effects, combined with significant productivity gains, points to a specific mechanism: capital deepening. AI augments worker output – enabling employees to complete tasks faster and make better decisions – without displacing labour."*

The productivity increase was greater among those companies that had invested in process and organisational changes.

> *"AI adoption alone is insufficient. Firms must make complementary investments to unlock AI's full potential. An extra percentage point of investment in software and data infrastructure increases AI's productivity effect by 2.4 percentage points. Investment in workforce training has an even larger multiplier effect: an additional percentage point spent on training amplifies AI's productivity gains by 5.9 percentage points. These findings underscore a critical insight: the productivity dividends from AI depend not merely on acquiring the technology but on firms' capacity to integrate it through investments in intangible assets and human capital."*

These findings are encouraging in terms of both job enrichment and productivity. Perhaps the tech optimist promise that AI will not destroy jobs but will instead automate tedious tasks, enabling more time to be spent on high value work, is within reach. A picture is emerging of significant adoption of AI tools in organisations but much of this is used at the individual level and there has been little attempt to integrate it into business processes. For now, at least, significant economy-wide productivity boosts seem some way off. The bet between Erik Brynjolfsson and Robert Gordon is still in the balance, with intellectually robust arguments in both the optimists' and sceptics' corners.

However, there may be some signs that we are at the start of the J-curve. If individual firms are making significant productivity gains it is conceivable that economy-wide productivity gains will follow. As one of the NBER paper's authors, Greg Thwaites remarked:

> *"The data so far on the impact of AI on the labour market is pretty murky on my reading, but on balance I do think that we should expect to see changes over the next couple of years."*

Wharton's Ethan Mollick thinks February 2026 was a pivotal moment.

> *"So here is where we are today: the instability of that single week in February was a preview of what it feels like when the increasing ability of AI starts to interact with markets, jobs, and governments all at once. That feeling of uncertainty will likely only spread further. But uncertainty is not the same as helplessness. When a technology is this powerful and this unsettled, the choices that individuals and organizations make right now matter more."*

The FT's John Burn-Murdoch has a similar feeling.

> *"For much of last year, it felt like the AI-and-work story was a standoff between insistent anecdotes of massive productivity gains or impending layoffs on the one hand, and stubbornly stable trends in the hard labour market data. Evidence that AI is behind hiring slowdowns has proved equivocal at best, and as we covered at length in October, the productivity claims were generally refuted by directly measured evidence.*
>
> *But this week I've taken another look at some of the indicators we and others were monitoring a few months ago, and with fresh eyes and fresh numbers, the signals in large-scale productivity data appear to be converging with the anecdotes. As swarms of AI agents are let loose to take on more and more tasks over the coming months, I suspect the upticks we have seen in code production will start showing up in a broader range of digital outputs."*

Right on cue, Erik Brynjolfsson appeared in the FT on 15 February to announce that the J-Curve moment has arrived.

> *"My own updated analysis suggests a US productivity increase of roughly 2.7% for 2025. This is a near doubling from the sluggish 1.4% annual average that characterised the past decade.*
>
> *This shift aligns with the productivity 'J-curve' that my colleagues and I have explored in earlier research. General-purpose technologies, from the steam engine to the computer, do not deliver immediate gains. Instead, they require a period of massive, often unmeasured investment in intangible capital – reorganising business processes, retraining the workforce and developing new business models. During this phase, measured productivity is suppressed as resources are diverted to investments. The updated 2025 US data suggests we are now transitioning out of this investment phase into a harvest phase where those earlier efforts begin to manifest as measurable output."*

Whether or not these signs of a productivity shift will translate into sustainable economy-wide improvements is still unclear. In an interview in the FT, Sarah O'Connor sounded a note of caution, reminding us that organisations are complex systems that contain bottlenecks.

> *"What can quite easily happen is that you can massively increase productivity on a certain team or on a certain task within one individual's work. But then all that happens is that creates a bigger bottleneck somewhere else in the organisation."*

The bottleneck argument is well made. Bottlenecks occur at a number of points that may prevent individual productivity increases translating into an economy-wide boost. The Bank of England and the Productivity Institute have cited poor diffusion of technological and managerial innovation across sectors as one of the factors holding back productivity growth.

Even if leaps in productivity happen in one part of the organisation, it doesn't necessarily mean that the organisation as a whole will become more productive. Assuming some organisations boost their productivity, that doesn't mean that boost will extend across the sector. It may be difficult enough to generalise productivity gains across a single organisation, let alone a sector or an entire economy.

Sarah O'Connor went on to express some scepticism about Erik Brynjolfsson's claims:

> *"Erik Brynjolfsson, who's a very well respected labour market economist, wrote quite a punchy piece in the FT recently saying that he thought now you could start to see this take-off in productivity, at least in the US, which is probably where we would expect to see it first because they've made the biggest investments.*
>
> *When he wrote that we didn't have the fourth quarter data for GDP. So we didn't actually know how quickly the economy had grown at the end of last year. And when that data did come in, it actually came in much weaker than we expected. When you now look at that, it's pretty hard to say that there's a big take-off in productivity. I don't think we see signs yet of a massive lift-off in that macro data."*

This exchange typifies the whole debate. Just when you think somebody has come up with a killer argument or a dataset that nails the issue, somebody else comes along and pours cold water on it. It is tempting to look at the numerous examples of shifts in productivity in specific occupations in specific organisations and think that this must *surely* translate into an economy-wide productivity boom at some point. Yet, so far, there is still no evidence of it. Perhaps it is looking a little more likely than it was when we wrote our previous reports on the subject but there is no clear sign yet of the much-needed productivity boom. If we are at the start of the J-Curve, the climb still looks very steep.

The Reward leader therefore has two imperatives, building the organisational capital within the wider organisation and developing the use of AI within the Reward function to improve its performance and create the capacity to move further into the strategic space.

KAREN CLARK, **PARC**

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5.0

REWARD'S ROLE IN THE TRANSITION

Whatever the speed and trajectory of the development of AI and its associated technology, the role of Reward professionals will be crucial. As we discussed in PARC's 2023 report the ***Future Reward Leader***, the Reward function is becoming a strategic partner in organisations and has the opportunity to enhance this element of its role. In the context of AI and technology adoption, that means becoming the 'go to person' on the dynamics of 'organisational' performance management.

What should reward leaders do? Here, Karen Clark, Managing Director of PARC shares her view and suggests some practical priorities.

Reward professionals have the opportunity to lead the conversation on all matters relating to the labour market and the recruitment, re-skilling and development of the workforce. This thought leadership will be critical in the deployment and exploitation of AI. The Reward leader therefore has two imperatives, building the organisational capital within the wider organisation and developing the use of AI within the Reward function to improve its performance and create the capacity to move further into the strategic space.

The evidence presented in this report points to a set of imperatives for reward leaders and their teams. These are not speculative. They follow directly from what the research tells us about the conditions under which technology delivers productivity gains, and the conditions under which it doesn't. What follows is an overview of the actions reward functions should be considering now.

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5.1

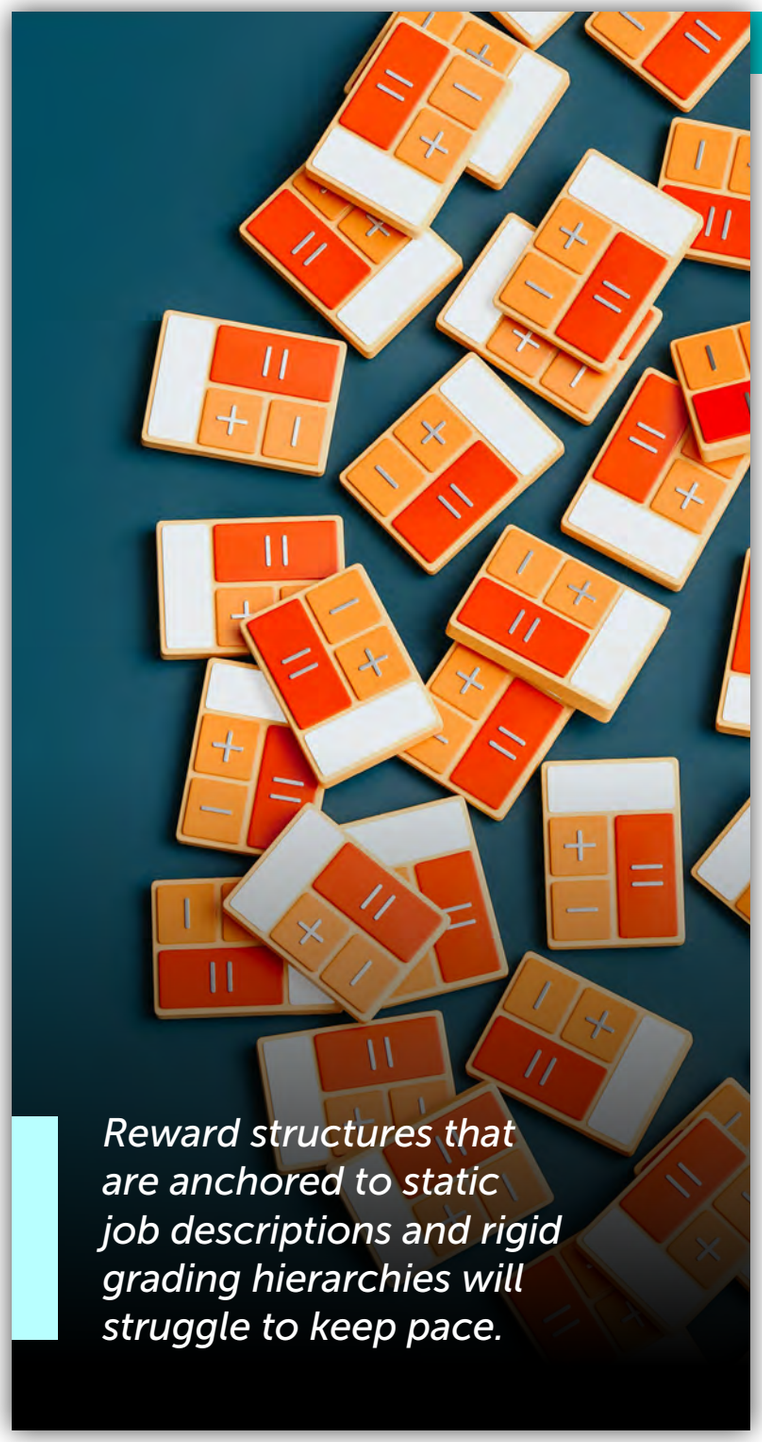
RETHINK WHAT YOUR INCENTIVE SYSTEMS ARE ACTUALLY REWARDING

The central lesson of this report is that technology only delivers productivity gains when it is accompanied by organisational change – redesigned processes, new management practices, knowledge sharing and cross-functional collaboration. The question for reward leaders is whether their current incentive architecture encourages or discourages the behaviours that organisational change depends on.

Most reward systems are optimised for the steady state. They reward individual performance against defined targets, reinforce functional specialisms and encourage people to protect their territory. These are precisely the wrong behaviours for a period when organisations need people to experiment, share what they learn, work across boundaries and accept that their roles may change significantly. Reward leaders should be conducting an honest audit of what their systems actually incentivise, not what the policy documents say they incentivise, but what behaviours people have learned will be rewarded in practice. If the answer is *"hitting your numbers and staying in your lane",* the incentive system is working against the organisational capital the business needs to build.

This does not mean tearing up existing frameworks. The evidence from the 1990s tech boom showed that the most durable productivity gains came from incremental capability building, not big-bang transformation. But it does mean deliberately introducing reward signals that value collaboration, knowledge transfer and willingness to redesign established ways of working.

Some practical starting points would be: reviewing whether AIP and bonus metrics recognise cross-functional contribution, not just individual or team output; examining whether performance management conversations include how people work with and adopt new tools, not just what they deliver; and considering whether recognition systems, formal and informal, are reinforcing experimentation or penalising the risk of failure.



Reward structures that are anchored to static job descriptions and rigid grading hierarchies will struggle to keep pace.

5.2

GET SERIOUS ABOUT JOB REDESIGN; BEFORE IT HAPPENS TO YOU

The research consistently points to task-level automation rather than wholesale job replacement. AI is automating specific tasks within roles, not eliminating entire occupations. But the implications for job design, grading structures, career pathways and pay frameworks are substantial. If significant elements of a role are automated, the remaining tasks may require a different skill mix, a different level of judgement, or a fundamentally different way of working. Reward structures that are anchored to static job descriptions and rigid grading hierarchies will struggle to keep pace.

Reward leaders should be working with HR and line managers now to understand which roles in the organisation are most exposed to task automation, what the residual roles look like, and how pay and progression frameworks need to adapt. The OECD's evidence on skill utilisation is relevant here: job rotation, work shadowing and greater autonomy have all been shown to improve productivity and knowledge transfer. Reward systems should be designed to support these practices, not penalise people for moving sideways or spending time on activities that don't map neatly onto their current job description. The occupational polarisation the report describes, including the hollowing out of mid-level roles, is a direct challenge to reward professionals. If AI accelerates this trend, reward leaders need to be actively designing career and pay pathways that prevent the organisation from losing its middle.

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5.3

OWN THE PRODUCTIVITY CONVERSATION

Many organisations do not measure productivity at all, and among those that do, the metrics are often blunt instruments. Revenue per FTE or Value Add per FTE tell you something, but they don't tell you much about whether your technology investment is delivering a return or whether your organisational changes are having the intended effect. Reward leaders are well placed to take the lead here, because they already work with performance data, workforce analytics and the metrics that boards and RemCos use to assess organisational health.

The distinction between productivity and performance matters. As we have discussed in previous PARC work, it is possible for an organisation to deliver strong financial performance while its underlying productivity is flat or declining – through market growth, pricing power or cost reduction that has nothing to do with producing more per worker. Reward leaders should be helping their boards and executive teams understand this distinction and developing metrics that track whether technology and organisational investment are translating into genuine productivity improvement, not just short-term financial results. This is particularly important for incentive design at senior levels. If LTIP and AIP metrics reward revenue growth and margin expansion without reference to the productivity of the underlying business, they may be encouraging executives to defer the organisational investment that technology-led productivity growth requires.

1

MAKE REWARD A CREDIBLE VOICE ON SKILLS AND CAPABILITY INVESTMENT

This report documents a steady decline in employer investment in training across the advanced economies, at exactly the point when reskilling is becoming more urgent. The IMF's warning about AI reinforcing occupational polarisation should concern reward professionals directly:

> if the highly-skilled capture most of the gains from AI while mid-level and lower-skilled workers are left behind, the consequences for workforce engagement, retention and the organisation's ability to adapt will be severe.

Reward leaders have the data on pay distribution, workforce composition and skills gaps. They should be using that data to make the business case for investment in capability development and to ensure that reward systems support rather than undermine learning.

If the only route to higher pay is vertical promotion, and if lateral moves into new roles or extended periods of reskilling are penalised in pay terms, the incentive system is working against the organisation's long-term interests.

2

GOVERN AI IN THE REWARD FUNCTION ITSELF

Shadow AI is not an abstract risk for the reward function. This report describes employees dropping entire pay databases into consumer AI tools to run analyses for RemCo papers. This is already happening. The data that reward teams handle, executive compensation, individual pay records, bonus calculations, share plan data, is among the most sensitive in the organisation.

Reward leaders need to move quickly from a position of not knowing how their teams are using AI to a clear, governed framework that distinguishes between legitimate productivity-enhancing uses and unacceptable data risks.

But this should not be a purely defensive exercise. The reward function has an opportunity to be a credible test-bed for structured AI adoption – demonstrating to the wider organisation what a governed, process-led approach looks like.

Professor Huysman's tiered framework is a useful model: use AI freely for low-stakes tasks like drafting, research and initial analysis, but require expert review for anything that informs a pay decision, a RemCo recommendation or an external disclosure.

> Reward teams that develop clear protocols for AI use, with proper audit trails and quality assurance, will not only manage risk better but will build the kind of organisational capital that the rest of the business needs to develop.

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3

BRING THE **EXECUTIVE PAY LENS TO THE TECHNOLOGY INVESTMENT DEBATE**

RemCos are increasingly being asked to consider whether executive incentive plans are aligned with the organisation's long-term strategy, including its technology and transformation agenda. This report provides a strong evidence base for reward leaders and RemCo advisers to challenge the adequacy of current approaches.

If AI deployment requires sustained investment in organisational capital, and the J-Curve research says it does, then incentive plans that reward short-term efficiency savings from technology while neglecting the complementary investment in people, processes and management practices are misaligned with value creation.

Reward leaders should be advising their RemCos on whether executive incentive structures adequately reflect the organisational transformation required to make technology investment pay off.

4

DON'T WAIT FOR CERTAINTY

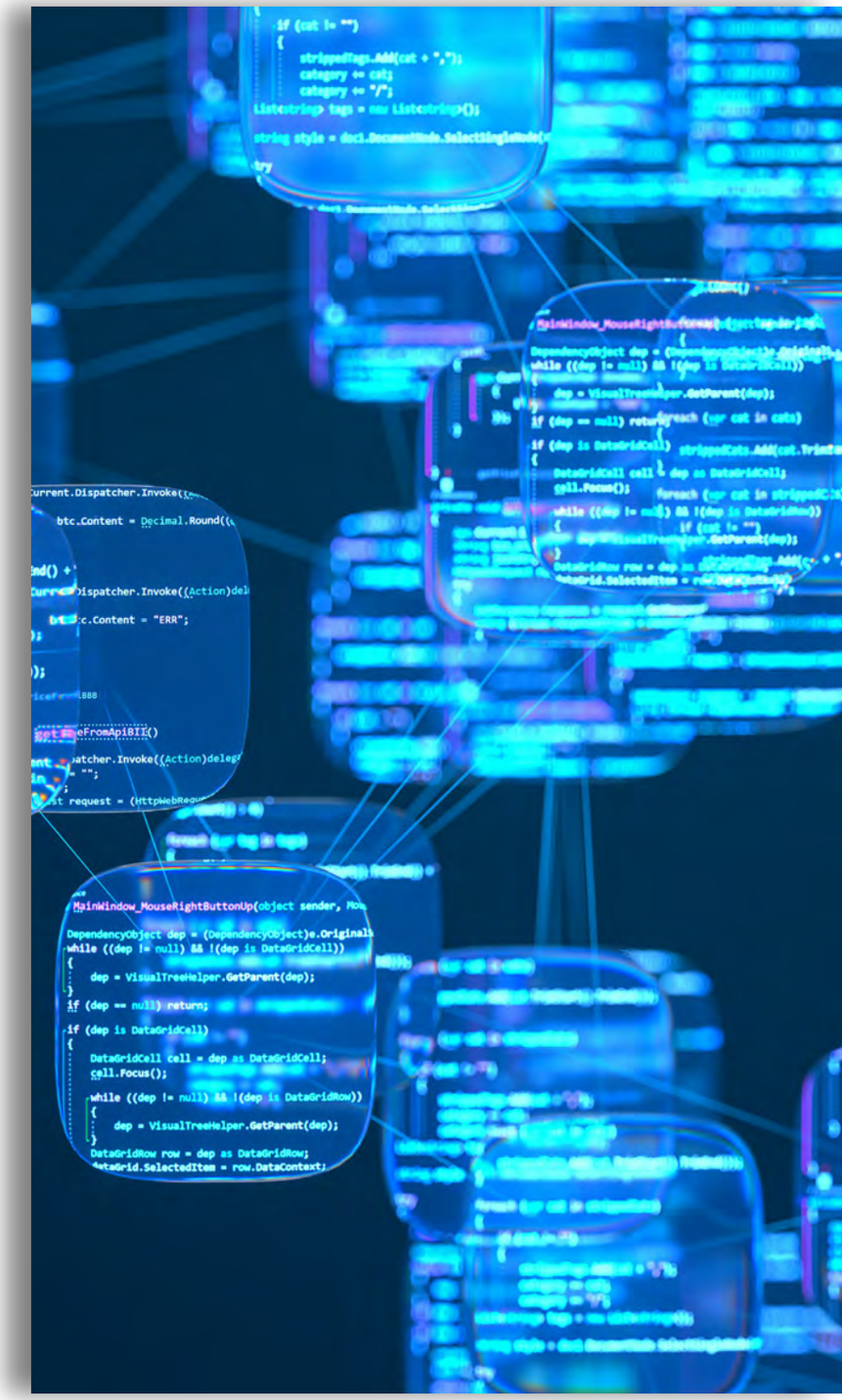
One of the striking features of the current moment is the sheer level of uncertainty. Economists disagree about whether the productivity J-Curve has started. Businesses report high adoption of AI but minimal measurable returns. Nobody knows whether the optimists or the sceptics will be proved right. This is uncomfortable territory for reward professionals, who are trained to work with precise data, defensible benchmarks and quantifiable outcomes.

But the history in this report offers a clear lesson: the organisations that benefited from previous technology waves were those that began building organisational capital before the payoff was visible, not after.

The 'paradox' firms of the 1990s were those that waited for proof before committing to the complementary investments. The reward function does not need to predict whether AI will deliver an economy-wide productivity boom.

What it does need to do is ensure that the organisation's reward systems, performance frameworks and capability investment are positioned for a world in which the capacity to adapt and reorganise is the primary source of competitive advantage.

That is a bet worth making regardless of how the Brynjolfsson-Gordon wager plays out.



The Marshall Plan observers were right in 1947 and they are right today: management quality and organisational capability are the critical variables.

6.0 CONCLUSIONS

The evidence presented in this report leads to a clear, if uncomfortable, conclusion: we are living through a technology paradox. The tools available to organisations have never been more powerful, yet the aggregate productivity gains from deploying them have, so far, been largely invisible in the macroeconomic data. History, however, offers a reason for cautious optimism, provided organisations are prepared to do the hard work that technology alone cannot do for them.

The lessons of the 1990s ICT boom are instructive. The organisations that realised genuine productivity gains from that period did not simply buy more technology than their competitors. They redesigned their processes around it, developed management practices that enabled their workforces to exploit it, and built organisational capital incrementally over time. US firms outperformed their European counterparts not because they had access to better technology (they did not) but because they were better organised to use it. The Marshall Plan observers were right in 1947 and they are right today: management quality and organisational capability are the critical variables.

The current wave of AI presents both a familiar challenge and a novel one. The familiar challenge is that technology does not transform organisations; organisations must transform themselves to exploit technology. Professor Brynjolfsson's J-Curve describes exactly this dynamic: the productivity dip that precedes the boost is caused by the time it takes to make the complementary organisational investments, in processes, skills, management practices and business model innovation, that allow the technology to deliver on its promise. There is growing evidence that we may be entering, or approaching, this period of delayed payoff now.

The novel challenge is the anarchic nature of Generative AI in particular. Unlike previous waves of enterprise technology, it has arrived in organisations not through the IT department but through the front door, adopted informally by individual employees, operating in the shadows of governance frameworks that were designed for a different era. This 'shadow AI' phenomenon is not simply a compliance risk; it is a symptom of a deeper structural problem. Without a clear and shared strategy for AI adoption, organisations will find themselves with the worst of both worlds: the reputational and legal risks of ungoverned AI use, and none of the productivity benefits that a structured deployment would deliver.

Against the backdrop of falling working-age populations, stagnating living standards and mounting fiscal pressure, the stakes of getting this right could hardly be higher. The productivity growth that AI could unlock is not a nice-to-have. It is, as Krugman's dictum implies, the only long-run route to sustained improvement in living standards. The extent to which AI will eventually transform productivity is still up for debate. Historical precedent and current evidence suggests that, at some point, it will. Whether individual organisations will be positioned to capture those gains or will watch them accrue to their competitors is a question of organisational rather than technical capability.

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For organisations navigating this transition, the evidence points to *four* priorities:

1

Develop a clear and shared AI strategy that connects technology investment to specific business processes and performance levers – the same approach that distinguished the 'jumping' firms in the 1990s ICT boom from the 'paradox' firms that invested heavily and gained little.

2

Build incrementally: the most durable productivity gains came from organisations that developed capabilities over time, allowing each phase of technology adoption to leverage what had gone before, rather than pursuing large-scale transformation programmes that outpaced the organisation's ability to absorb change.

3

Avoid initiative overload: the cognitive and managerial bandwidth consumed by poorly coordinated technology initiatives is itself a drag on productivity.

4

Invest seriously in the organisational capital that technology cannot provide: the management practices, decision-making processes, skills development and cultural change that determine whether technology delivers on its promise or simply adds to the pile of expensive disappointments.

The role of the reward function in this transition deserves particular attention. Pay and incentive structures are one of the most powerful levers available to organisations for shaping behaviour, and the behaviours required to successfully exploit AI – experimentation, knowledge-sharing, cross-functional collaboration and a willingness to redesign established processes – are not necessarily those that existing reward architectures are designed to encourage. As organisations grapple with the question of how to build the organisational capital that AI deployment requires, the reward function offers both a test-bed for new approaches and, if designed well, a powerful accelerant of the cultural change on which productivity growth ultimately depends.

Over the next few years, it is likely that AI will develop in ways we have not yet imagined. As Faisal Galaria put it, we are still at the 'word processor' stage of AI use:

> *"When people first used desktop computers, they were for word processing. Now we use the computer in so many different ways. We can use Excel on it, we can stream Netflix, we can build databases or we can use it for social media.*
>
> *We're at that word processor stage with AI. We're using it as if it was Word on the very first PCs. What we need to do is look at ways that it can change our business, create revenue, improve business, make things simpler, more sustainable, more robust, and give us competitive edge. But that's just the way that computing developed as well. We can do lots of interesting things once we become more familiar with the technology and learn how to use it."*

The technology paradox will not resolve itself. Organisations that treat AI as simply the latest IT procurement decision will find, as many of their predecessors did, that the technology delivers far less than its proponents promised. Those that treat it as an organisational transformation challenge – one that requires sustained investment in people, processes and management capability, not just in software licences – stand a realistic chance of being among the 'jumping' firms that drive the next productivity boom. The robots will not take our jobs fast enough, as Duncan Weldon put it. But with the right organisational foundations, they might just help us build a more productive economy than we have managed for the past two decades.

The findings covered in this report give some indication of the direction of travel but much about productivity growth and the development and deployment of technology remains unclear. There are many factors which might influence both and the interaction between them. However, there are two things we can say for certain. Firstly, AI has already embedded itself into organisations and is continuing to do so at speed. This will change organisations in ways as yet unseen and, in many cases, in ways unintended by their leaders. Secondly, without economy-wide productivity improvements many (if not most) countries will face serious economic and fiscal problems in the coming decade. Whether those two dots can be joined to create the economic conditions that will improve living standards and levels of development for the world's population remains to be seen. Key to this will be the decisions taken by the senior leadership in today's organisations. The Reward function must place itself at the centre of those discussions.

EXTRA RESOURCES

For workshop ideas and other resources connected to this report, visit the PARC website.

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